HARVARD EDUCATIONAL REVIEW

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A Symposium:

The Physical Science Study Committee

Elbert P. Little
J. A. Easley, Jr.
Fletcher G. Watson
Edward P. Rosenbaum
Alexander Calandra
H. Russell Beatty
Leo E. Klopfer
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Information for Contributors

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THE EDITORS

The Physical Science Study Committee

ELBERT P. LITTLE

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Dr. Elbert P. Little is presently the Assistant to the President of Educational Services Incorporated which is the parent body of the Physical Science Study Committee. Having served as a science teacher at Phillips Exeter Academy and as a Professor of Physics and Mathematics at Wayne State University, Dr. Little comes naturally by his interest in science education in the secondary school.

Dr. Little received his A.B. and Ph.D. in physics from Harvard University and is an author of Hogg, Cross and Little, *Physical Science for High Schools* and Black and Little, *An Introductory Course in College Physics, Fourth Edition.*

This Committee was formed in 1956 to study the teaching of physics in the secondary schools and to suggest such changes as seemed advisable. Original plans included the production of teaching films and new kinds of apparatus but early studies suggested that a thorough revision of content and approach were needed.

Professor Jerrold R. Zacharias of MIT was the organizer and pace-setter of the Committee. Informal discussions early in 1956 with his colleagues at MIT and Harvard revealed a strong interest in the problems of secondary school physics. Visits to several other colleges, universities, and industrial laboratories quickly proved that similar interest was widespread and that help would be available for the organization of a strong group to study the problems. Initial funds were secured from the National Science Foundation in November of 1956 and the first major meeting was held in December.

Earlier studies by the American Institute of Physics, the American Association of Physics Teachers and the National Science Teachers Association supported the first conclusions of the Committee that (a) secondary school physics textbooks in general presented the subject from a point of view that dated back half a century and no longer reflected the views of the scientific community, (b) genuine attempts to add new material had resulted in a patchwork quality in which the unity of physics had disappeared, (c) the amount of material in the textbooks had become so great that it could not be reasonably taught in an academic year, (d) much of the new material reflected the increasing importance of technology in our society, but resulted in further overloading of the course and further minimizing of the concepts of the science itself.

At the December meeting several groups presented tentative syllabi for a new course. It was generally agreed that the new syllabus should replace the present course in secondary schools and that it should be prepared for students with a wide range of interests. From the beginning it was clear that much of the usual subject matter would have to be left out. The material dealing with technology was omitted. Some physics of considerable significance and interest was also omitted but with reluctance.

To be retained, each item of subject matter had to meet the following criteria:

(1) To stress major achievements of physics, such as the great conservation principles.

(2) To give insight into the way in which these powerful ideas were conceived, nurtured and sometimes overthrown by even more powerful ideas.

(3) To present a unified story in which the interconnections within physics were brought to light.

(4) To show physics as a human activity comparable in signficance with the humanities, the languages and the other major studies of high school students.

The course outline is in four major sections. The first deals with the basic concepts of which the student must have some understanding before he can pursue a worthwhile study of the subject matter of science: Time, distance and motion; the nature of measurement; the atomic structure of matter and the molecular interpretation of chemistry. The presentation is through general concepts rather than specific definitions, and the student makes some contact at once with most of the subject matter with which he will deal later in greater depth.

The second part of the course is a study of optics and waves. Optical phenomena are described in terms of rays and then a particle theory is developed to provide a possible picture of the nature of light. When this model fails to provide an explanation of the refraction of light, the concepts of wave action are introduced as an alternative model. The student studies waves in ropes, springs, and ripple tanks, finding agreement with the properties of light and predicting new effects in light through experience with waves. The understanding of waves is general enough to allow extension to other areas. For instance, the nature and properties of sound, though not stressed in the course, can be developed by the student because of his basic understanding of waves.

These two sections, constituting the first half of the course, emphasize the kinematics of our universe. The third section introduces Newton's law of motion, showing the relation between force and motion and leading to the extraordinary story of the discovery of universal gravitation. Conservation laws form a substantial part of this section of the course and lead naturally to a development of the kinetic theory of heat as an application of dynamics in a particular field of physics.

The fourth section includes a careful introduction to electrical and magnetic phenomena, especially the interactions of charged particles with electric and magnetic fields, and with solids, liquids, and gases. The techniques of the electrical and electronics industries are omitted but the major experiments of modern physics are carefully developed. The photo electric effect, for example, requires the return to a particle concept of light but with new insights into the nature of both matter and light. The course returns to the study of the atom:

its discreteness, its structure, its charges, its nucleus, and its behaviour. Thus the circle is closed and the student returns to the basic concepts of science with a new understanding.

During the summer of 1957, college and university physicists worked at MIT with high school physics teachers from many parts of the country creating the first approximation of a new text book embodying the concepts of the new course. At the same time, work was begun on new forms of simple apparatus for student use and on the early stages of new teaching films. A teacher's guide, laboratory guides, film notes, new examination questions, and a set of resource books were planned as part of a complete set of teaching aids to go with the course.

Special efforts were made to finish the first of the material in time for use in schools in the fall of 1957. Eight schools, whose physics teachers had worked at MIT during the summer, started the course in September and carried through the whole school year, often with materials coming to them only a few days before they needed them for teaching a particular subject. The successes and troubles experienced by these teachers and their students were the basis for a first revision of the Section I material. In a similar way the feedback from the later sections of the course and from the laboratory work will be used to modify and improve the other teaching materials.

In the summer of 1958 nearly 300 high school physics teachers attended five NSF Summer Institutes at which the PSSC course was the subject of study. Over 200 of them and nearly 100 others who have become familiar with this course by special programs are teaching the course this year. Over 12,500 high school students constitute the test group of 1958-59. The experiences of these students and their teachers will provide continuing feedback to improve and modify the course.

The Physical Science Study Committee and Educational Theory

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Now entering the third year of a ten year project devoted to revamping the teaching of physics in high schools, the Physical Science Study Committee has produced evidence of a stimulating, fresh approach. The materials I have examined — two volumes of a four-volume text and the first annual report — testify to a number of unusual features of this project. These include the committee's concern with the complete process of teaching and studying, the high caliber of the talent it has enlisted, the remarkable budget for its project, and the impressive objectives it has adopted.

In what follows, I shall attempt to interpret the program of the P.S.S.C., as I understand it, in the light of a number of criteria that seem to me highly relevant to such an enterprise. These criteria cover fairly well the stated objectives of the P.S.S.C. but are presented in a different and somewhat more general form in order to relate them to educational theory. The fact that the committee is composed primarily of physicists is sufficient reason that its objectives have not been examined from the point of view of general curriculum development. But the educational ideas implicit in the work of the committee are so sound that I think specialists in the secondary school science curriculum ought to take note. In fact, I should like to add as a personal note that, although the criteria I discuss in what follows are not new to educational theory, some of them have never been made so clear to me as when I recognized them in the work of the committee.

From my point of view, it is difficult to find any major complaints against the program, but I shall take the liberty of pointing out certain cases in which the committee has not applied criteria, which seem to me important, as thoroughly as it might. This, of course, is to be expected in a project so early in its development. I do have a complaint regarding the manner in which one of the objectives of the committee has been stated, but I hope that such criticisms as I make will be taken in the spirit of enthusiastic participation in which they are made.

My complaint has to do with the committee's manner of describing its general purpose. The P.S.S.C. has stated its major objective as that of making high school physics more truly representative of physical science as it is practiced today. In this it has been remarkably successful, and, as I shall argue later, this is a far more significant objective than might generally be admitted by educational specialists. However, the committee goes on to state in its annual report that it has "sought to restore the primacy of the subject matter in the teaching process." Unfortunately, this statement is a very strong reminder of the debates over child-centered vs. subject-centered curricula, or the question of methods courses for teachers vs. more courses in subject matter. As such, the committee's statement is guaranteed to evoke cheers from the academic bleachers and boos from the defensive educators. But the work of the committee is not likely to convince educators that they have been wrong in defending attention to the individual learner and the importance of method in teaching, for its work provides superb examples of the very best in educational methods. Besides, the remarkable fact that one group of subject matter specialists has been able to put sound educational methods into practice does not mean that the training of teachers can be entrusted to any group of subject matter specialists. Quite on the contrary, by comparison with the course under discussion, the pedagogical shortcomings of introductory physics courses throughout the country, in high schools and colleges alike, testify to the unique character of the P.S.S.C.

I do not anticipate that the committee intends to take sides in these futile debates, but a word of warning does seem in order for the incautious. The primacy of subject matter with respect to teaching methods is as meaningless a proposition as the superiority of heredity with respect to environment. The full cooperation and appreciation of professional educators will be needed to give the work of the P.S.S.C. the support it deserves. It is, therefore, of very great importance that the course being developed by the committee be interpreted in terms of the most basic and valid ideas of educational theory.

Bringing New Concepts from the Frontiers of Science Into the Classroom.

Our educational system, unfortunately, does not allow for a ready utilization of ideas from the intellectual frontiers in the schoolroom. We are inclined to regard advanced ideas as having value only for the few who will become research workers. Yet we must readily admit that the things we regard as important school objectives now were formerly matters of inquiry on the level of the most advanced thinkers of the times. With research in all fields going on at unprecedented rates, we must seriously consider how to decide when it is appropriate to bring ideas from the frontiers into the schoolroom and we must set up means for doing so.

The criterion of importance in this problem is expressed in the question, How much simplification can be introduced into the curriculum by use of some particular new idea? Simplification of thought is the basic reason for introducing new concepts on a research frontier, and many of them will prove to have a similar value in instruction, if only the persons responsible for the school curriculum can find out about them. It is customary to think of research as producing material benefits and discovering new principles, but its production of new ways of organizing knowledge is probably of greater long range value than the other two.

The P.S.S.C. text is the only one on the high school level, to my knowledge, that discusses such things as "black boxes," and mechanical models of physical phenomena, that weighs the values of different concepts of mass, or enters into the calculation of molecular dimensions based on the data from a scintillation counter and measurements on a monolayer. These examples are based on quite simple ideas which serve the same valuable purpose in introductory physics that they serve in simplifying problems for the physicist. The authors of the P.S.S.C. text thereby demonstrate what has often been said, that familiarity with research pays off in teaching. But it might also be observed that this does not happen as often as one would hope, for it requires considerable effort and ingenuity to determine which concepts, useful in research, may be effectively incorporated in introductory instruction now and which will have to wait their time.

The manner in which modern concepts are presented in the classroom is a matter of great importance that can be easily neglected. In collegiate courses in general chemistry, for example, there is a tendency to go to extremes and immediately introduce the electronic architecture of atoms, including some general principles of quantum mechanics. This presumably gives the instructor the freedom he desires to explain things the way he understands them from the start, but it requires that students commit many abstract principles to memory simply on the authority of the instructor or text. The P.S.S.C. physics course may improve this situation in one way by providing a better background for understanding quantum mechanical principles. What is of greater significance to educators, however, is that it may clarify the criteria for selection and arrangement of concepts for greatest educational value.

Exhibiting the Spirit and Method of Inquiry in the Classroom.

Another corrective which the P.S.S.C. can supply to dogmatic tendencies in science teaching lies in the criterion that the spirit and method of the parent discipline should be represented in the spirit and method of classroom procedures. This is one of those propositions to which everyone agrees but which few ever take very seriously. It is generally assumed that, in a beginning class, students do not know enough to understand what scholarly inquiry is all about. And it is generally concluded that there is very little that can be done in this way in such classes. As a consequence, most teaching becomes a procedure based upon authority, any lip service paid to scientific method being generally ignored. Science teaching becomes, therefore, about as far removed from representing scholarly inquiry as one can get. The trouble is that those who advocate that teaching demonstrate the method and spirit of creative research on the introductory level seldom realize how difficult this is to do — especially in those disciplines, like physics, where research has reached a highly complex level.

Educational theorists will recognize this principle as one given a fundamental place by curriculum study groups such as that of the Progressive Education

Association and by certain philosophers of education, especially John Dewey. But little progress has been made in putting it into practice. I have suggested elsewhere (1) that the scholarly study of scientific method and learning processes by such disciplines as philosophy, logic, statistics, and psychology, be used to bring this objective within reach. The P.S.S.C., however, draws on the talents of persons who are obviously sufficiently well practiced in scientific method to be able to apply it without the necessity of elaborate analysis. It remains true, however, that curriculum specialists can profitably utilize a more systematic study of these aspects of scholarship. A careful analysis of the P.S.S.C. course from the point of view of one or more of the disciplines just listed will be needed to show how scientific method and spirit have been adapted to elementary instruction. For example, the specific techniques used in solving problems and the specific value judgments used in drawing conclusions could be tabulated to show the patterns formed as they are introduced, progressively used and refined. Analysis of patterns by which the content of instruction is programmed is sorely needed in order to give concrete interpretations to educational ideas that are customarily left in a state of considerable vagueness.

Programming Problems for Most Effective Learning of Principles.

Just as the methodological techniques and scientific values need to be used again and again in order to be assimilated by the students, so the concepts and principles of physics itself need to be carefully arranged to provide for most effective learning. Learning how science works is of great importance, but the selection of problems for inquiry should be based on the even more important objective of mastering key physical concepts for their value in interpreting experience and in keeping abreast of new developments in science. We may state this criterion as follows: Problems investigated by the class should be so selected and organized as to maximize further learning, both that which is directed by the teacher and that which is self-directed.

This means that, if the concepts of physics selected are those having the greatest possible value in the widest variety of applications, the student's ability to retain and use his knowledge will be maximized. Since the more general concepts of a subject must be built upon a more direct level of experience, the traditional system of teaching a whole course on one level and moving up only in a later course must be replaced by a system of moving upward as the particular course progresses. Instead of a survey of physics, an inquiry into selected parts of physics is required.

The concepts introduced in the first volume of the P.S.S.C. text are quite well selected according to the above criterion, finding applications in most branches of physics, and other sciences as well. Concepts involved in the measurement of distance, time and matter are skillfully introduced in the process of solving a number of very interesting problems. It is possible, however, as the programming stands in the preliminary edition, that some of these concepts are not used again until so much later on, that they may be forgotten. If such proves to be the case, it might be better to postpone their introduction until they can be followed up promptly with further application and development, but this is a matter to be decided on the basis of experience.

The second volume of the text illustrates the structural unity of physics in connection with the study of light, in keeping with the very best traditions of the science of optics. Following a chapter describing various light phenomena in general terms, which is itself a nice innovation, the authors then develop a particle model of light to the point where a serious contradiction is reached. Then a new model is sought to represent the transmission of light. Waves are suggested quite naturally and are studied experimentally in a number of media to determine what analogies can be found with light. Development of the wave model of light is continued through diffraction, but the way is left open for still another model of light. Not only is this inquiry presented in a genuine way, but the concepts are so skillfully organized that there are no dead-end streets. The values gained by the particle theory, for instance, prove helpful in developing the wave theory. My only suggestion is that perhaps some gaps ought to be left in the main line of development so that students would be forced to make some of the steps themselves. The difficulties of choosing which steps to omit, of course, entirely justify making the first preliminary edition a complete one.

If, as has just been urged, students are expected to solve problems arising in the development of the course, considerably greater preparation of the teacher is required. In order for students to participate in the discovery of important relationships, the teacher must, for efficiency's sake, have mastered a detailed analysis of a number of different ways in which these principles may be discovered. It is practically impossible for a teacher to guide pupils' efforts at discovery if he knows the subject only as presented in textbooks. The danger of "nipping in the bud" genuine but unfamiliar solutions is made clearly evident in Polya's work (3). It is therefore suggested that, in the proposed teacher aids, the P.S.S.C. supply a variety of different step-by-step solutions for the experimental and theoretical problems scheduled for presentation to students. The solutions of some may then be left out of the text. In the long run, however, the teacher must develop sufficient skill in scientific reasoning and in teaching problem solving to get away from a prescribed list of problems and solutions. This is a real task for teacher training programs in physical science.

Making learning more and more self-directed is necessary because of two problems with which educators have become increasingly concerned. One is the impossibility of covering adequately all the topics in physics which make important contributions to education, and the other is the difficulty of providing sufficient stimulus to students of superior learning capacity. It is not enough to exhort students to read *Scientific American* and other sources in order to extend their knowledge. A carefully planned training is required to develop the attitudes and incentives necessary for continued study beyond what is covered in class. A set of study materials sufficiently stimulating to arouse interest and closely enough related to the materials of the course to be within the students' reach is needed.

The P.S.S.C. has undertaken to provide just such materials in the form of supplementary monographs. The way in which these relate to the course may be roughly indicated by the following example. One of the traditional topics omitted from the course in order to permit greater depth is the physics of sound. Three of the thirty-two monographs planned, however, fill in this gap, dealing with the physics of music, underwater acoustics, and ultrasonics. All of these topics should prove accessible to a student who has mastered the wave theory of light, if he can be encouraged to study these monographs himself.

Programming for "Physical" Learning of Physics And its Integration with Theoretical Learning.

In the preceding discussion I have been concerned with the programming of principles of physics and scientific method and of scientific values for most effective instruction. There is still another aspect of physics in which traditional practices may now be replaced or supplemented by instruction programmed for maximum effectiveness of learning. There is a sense in which physics can be learned other than by the verbal and mathematical statements of principles. For example, a skilled juggler or a craftsman, in learning to manipulate objects effectively, must build into his neuro-muscular system analogs of physical principles of some sort. There is no question of the superiority of the formally symbolized principles of physics to the nonformalized, neuro-muscular analogs, even though we know next to nothing about the latter. But it *can* be seriously questioned whether formal learning of physics can be effectively utilized without a considerable amount of "physical" learning well integrated with it.

The basis for the educational role of physical learning may be summarized by several observations. Although the mathematics of physics can be mastered without developing any skills reflecting good neuro-muscular analogs, the application of physics to either practical or research problems requires the ability to make good guesses or hunches, anticipating what can be worked out mathematically. This ability surely depends upon establishing a relationship between formal principles and some sort of neuro-muscular analogs. Furthermore, nonformalized learning of physical principles can also be programmed, and the extent of this learning can be measured, thus permitting study of the most effective relationship between formal and non-formal learning.

Traditionally, non-formal learning of physical principles has been one of the chief justifications of laboratory work, and the P.S.S.C. is undoubtedly on the track of its most effective utilization in making laboratory work central and in designing it as genuine inquiry. But we are still left in the dark as to how much is learned by the manipulation of any given piece of apparatus in any given experiment compared with what could be learned if use of the apparatus were programmed. That the apparatus of physics courses can be used in the psychological study of learning and concept formation, has been ably demonstrated by Inhelder and Piaget (2). Although they have been principally concerned with the construction of models of learned conceptions in the language of symbolic logic, their studies reveal very significant interactions between physical, manipulative skills and the formal learning of principles.

An even more intriguing possibility is the utilization of laboratory apparatus as a type of "Skinner box" or teaching machine (4, Ch. V) in order to provide reinforcement of the responses of the student in proportion to the closeness with which he predicts the behavior of the apparatus. In some cases, the programming might involve elaborate electronic control systems. In other cases, such as in a demonstration of Ohm's law, conventional or homemade apparatus lends itself to tasks in which the reinforcement would follow automatically upon a successful manipulation. Thus one could learn to predict ammeter readings when resistance is changed in a circuit, and perform other similar tasks by trial-and-error methods. It would be most valuable to determine whether it is true that the better the student has learned to manipulate electrical circuits, the more readily he can learn the formal uses of Ohm's law.

In the light of these considerations it is most significant that the first annual report of the P.S.S.C. states that the laboratory group has constructed several preliminary models of machines for individual learning and plans to develop others. The fact that it is the laboratory group that is responsible suggests the possibility that these are not machines for verbal training but offer direct experience with physical phenomena. Verbal learning machines, which indicate whether answers to questions on a schedule are right or wrong, are an adaptation of Professor Skinner's "boxes" and are of considerable value in learning languages and other strictly verbal subject matter. Such verbal or symbolic training machines may be of value in a physics course, but machines for the learning of physical principles *physically* would be of considerably greater value.

The value of such machines in diagnosing and treating individual difficulties should prove very great indeed, and the number of different machines needed for effective utilization of the idea may not be very great. Once a teacher becomes familiar with the techniques of training and the psychological principles of reinforcement, it is possible to organize many very simple laboratory tasks to serve as learning machines. The possibility that persons who now exhibit little aptitude for physics could overcome this with appropriately coordinated physical and symbolic training is very intriguing indeed.

That many people go through life without much ability to conceive of certain simple physical relationships is probably recognized by most physics teachers. In explaining physical principles, they must take for granted a great many "obvious" facts of everyday experience. But some of these may never have been grasped and thus the explanation fails, often in a way that gives little clue to the difficulty. Sometimes, as in the following example, the teacher can put his finger close to the trouble in the non-formal models of the world with which people actually manage to get along.

In a class I taught recently, several students were having difficulty acquiring consistent usage of the concept of slope of a straight line segment. The slope of a line and height at one end were often confused despite considerable practice in calculation and measurement. Finally, one person remarked that she had just realized why, in walking over an arch bridge, it was easiest walking at the top, for there the slope was least. This remark suggests that many people may have made insufficient conscious distinction between their physical response to slopes and heights in everyday experience to be able readily to grasp the distinction on an abstract level.

* * * * * *

Looked at from the point of view of educational research, the P.S.S.C. program offers many problems for further study, but there is no denying that the way has been opened to make physics a far more valuable part of the high school curriculum. The achievements of this new course should serve to remind educators what they are often prone to forget, that in physics, and also in every other academic discipline, there lie resources for the solution of educational problems which are usually neglected. These include new concepts and techniques and the flair that many research workers develop for inventing novel solutions to problems. Even more important is the fact that some persons on the frontiers of research in any field can be found who are sufficiently concerned with teaching and learning to attempt to apply the philosophy of their disciplines to problems of teaching.

What lies in the future is the possibility of utilizing machines and techniques that will aid teachers in diagnosing and treating learning difficulties much as laboratory analysis and drugs have come to do for physicians in health problems. Those who fear a scientific revolution in education as something monstrous need only look to the medical profession to observe that it is possible to preserve human values in a profession that makes use of technology for greatly increased effectiveness.

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CORRECTION

Joshua A. Fishman, author of the article "Unsolved Criterion Problems in the Selection of College Students" which appeared in the Fall, 1958 issue of the *Harvard Educational Review,* is Associate Professor of Human Relations and Psychology and Director of Research at the Albert M. Greenfield Center for Human Relations, University of Pennsylvania. His title was given incorrectly on page 374 of Volume 28, Number 4.

Comments on the Program of the Physical Science Study Committee

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Dr. Fletcher G. Watson, Professor of Education at Harvard University, received his A.B. in astronomy from Pomona College in 1933. After taking a Ph.D. in the same field from Harvard, Professor Watson served as Research Associate and Executive Secretary of the Harvard Observatory. Professor Watson is well known in the general area of training science teachers and as the author, with Paul F. Brandwein and Paul E. Blackwood, of *Teaching High School Science: A Book of Methods.*

After two years of activity, 1956-58, the efforts of the Physical Science Study Committee may be appraised in process. Inevitably my comments reflect my personal background of study and research in astronomy, followed by twelve years of concern for improving science teaching in pre-collegiate schools. Through this experience I have come to know and respect many fine science teachers whose day-to-day tasks are more complex than outsiders recognize. To date the efforts of the Physical Science Study Committee show many strengths and wise decisions, but also weaknesses and potential difficulties, which sometimes, paradoxically, arise from the actions which also appear as strengths.

Strengths: Initially the Committee, composed primarily of distinguished collegiate and research physicists, considered the purpose of physics in the secondary school. To the Committee the basic purpose or "intent," should be to reveal physics as a series of interlocking conceptual schemes employing mathematical models which describe many events in the world around us and allow predictions in novel circumstances which can be tested by further observation.

Their criticism of the existing physics courses, as represented by numerous similar textbooks,[1] was that it was too busy with a variety of topics with the result that none were examined in adequate depth. Consequently the student learned many "results" but had little opportunity to understand how any of them were achieved or how they were interrelated. In addition, most of the physics considered was of the "classical variety" which did not introduce the student to "modern physics" dealing with quanta, waves, and probability functions. Also, this course was heavily loaded with technology or technological applications which absorbed time needed for considerations of physics as a basic science. Similar criticisms had been made many times by teachers[2] but without any significant changes resulting.

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[1] Compton, C. A.: "The Secondary School Textbook," *Am. J. Physics,* Vol. 21, 1953, p. 537. See also Michels, W. C.: "High School Physics — A Report of the Joint Committee on High School Teaching Materials," *Physics Today,* Vol. 10, 1957. p. 20.

Among the reasons for such lack of change were: lack of analysis and cooperative planning by the teachers, and uncertainty about the reaction of collegiate teachers and admission testers to marked changes. Surely the arguments of the Committee and their other actions lead to the conclusion that, although change is needed, there is no single organization of the course in physics which is the "only right answer".

To do more than merely criticize the existing course, the Committee has searched for illustrative material that would develop their basic intent and also provide an introduction to modern physics. The subject matter chosen is concerned with wave phenomena, optics, probability, and some basic mechanics. The basic concepts of calculus, such as limits and rates of change, are needed in this context. To "put meat on the bones" of this analysis, the Committee further decided to develop a total packaged course, which has been described in some detail in the paper by Dr. Elbert Little.

The strengths of these accomplishments are many. The existing curriculum has been ruthlessly purged. A new orientation has been defined and exhibited. A total package of teaching materials is nearing completion. All this has been under the sanction of a group of very distinguished physicists, including several Nobel Prize winners. Also, numerous other collegiate instructors have, at various special meetings, concurred with the intent of the effort and agreed to assist by advising nearby teachers and operating special training programs. Certainly the strengths are many; where then are the weaknesses?

Weaknesses: Until children in hundreds of classrooms throughout the nation actually use the instructional materials and through them gain the insights and emotional rewards intended, all the planning and production is of no avail. But the local and important arbiter of what the children study and under what conditions is the teacher. The big task facing the Committee lies not in physics, nor in the design of novel instructional materials; but rather in communicating with widely scattered and independent teachers and convincing them that they both can and should abandon what they have considered proper and adequate instruction and instead utilize novel, if not revolutionary, materials having important but subtle intellectual and emotional overtones. To many teachers the risks seem large and the rewards mainly more work.

These teachers generally meet various classes for a total of twenty-five periods each week. Very few teach only physics; most teach one or two other subjects while some have even more diverse responsibilities. They recognize that the time needed for them to comprehend and plan the operation of a completely new course in physics is rarely available. While special summer sessions of six weeks duration and through-the-year discussions on the new materials and their classroom use will help teachers understand the intent and content of the new course, they also need time for preparation and thoughtful appraisal during their school day.

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[2] National Society for the Study of Education, 46th Yearbook, "Science Education in American Schools," Part I. Chicago: University of Chicago Press, 1947. Pp. 210-211.
Lefler, Ralph W.: "Trends in High School Physics," *Bull. Nat. Assoc. Sec. Sch. Prin.*, Vol. 37, Jan. 1953. P. 74.
In general, also; Brandwein, P. F., Watson, F. G., and Blackwood, P. E., Chap. 14, "The Course in Physics," *Teaching High School Science: A Book of Methods*, New York: Harcourt Brace and Co., 1958.

Experienced teachers who have worked through their courses for some years are as conservative as the captains and navigators of ocean-going vessels who are acutely aware of their responsibilities and of the actions that have proven satisfactory in the past. Many of these teachers are dismayed when most of what they have taught and their method of teaching it is cast aside. The abruptness and magnitude of the proposed change is bewildering when the action comes from previously aloof college physics teachers whom the school teachers have attempted to copy or at least to please. Since the derided old course was not unlike that customary in colleges, or so it seemed, school teachers are wondering why, if these changes are so necessary in their courses, the collegiate courses have not evolved in this direction, or whether similar abrupt changes will now occur in collegiate texts and instruction. Is this "medicine" applicable only in the secondary school? An answer to this will appear in the extent to which those responsible for training new science teachers adopt these or similar materials for their collegiate physics courses.

Certainly the creation of a revolution in any school course is exceedingly difficult. Changes must be adopted on their own merits as increasing trials prove effective. In the effort to push the P.S.S.C. course, some of the pronouncements have implied that this was *the* physics course. Teachers are sceptical, for they know that problems of instruction do not have universal and unique solutions. Even the possible appropriateness of this course is questioned since it was designed by research physicists and collegiate instructors and only subsequently were teachers brought in to appraise and cooperate on the trimmings.

School administrators, as well as teachers, are concerned about the sizable costs of books, manuals, equipment, and especially the films that come in this packaged course. Outlays that would be very modest in a university physics department loom large for a single course among all those provided in a secondary school.

The "study" aspects of the Committee's work were of short duration. After a relatively short period of investigation, they have plunged with self-confidence into the production of an elaborate set of materials. At the moment we witness a promotional campaign for adoption of what is essentially an untried product. The first test runs in 1957-58 were in a small number of schools having mostly teachers and pupils of above-average capabilities. Half of the text was in draft form and few films were available. The well-known "halo" or "honeymoon" effect for a new course taught by especially enthusiastic teachers added vigor and excitement to this initial trial. In an effort to expand the use of these materials as rapidly as possible we have during 1958-59 over 12,000 pupils in 495 classes with 282 teachers in 277 schools. To obtain useful "feed-back" from such a number of schools will be at best difficult.

Responsible members of the Committee have said publicly that for the school year 1960-61 all materials will be available to anyone who wishes to purchase them. This will effectively end the brief period of revision, for once schools have invested their monies, they will be loath to acquire newer editions. Also, some teachers may, under local pressure to be up-to-date, attempt to use these materials without special prior instruction. Almost surely difficulties and disillusionment would follow. By contrast we notice the seven years of evolutionary work by the University of Illinois Committee on School Mathematics whose materials were in 1958 being used under close supervision by less than 45 teachers.

A Look Ahead: What forecast can be made for the long-term results of the Committee's efforts? While any forecasts are uncertain, we can expect to find some teachers of special ability and enthusiasm using these materials effectively. Probably many others will watch with interest how these classes develop, but delay their own commitment. More likely, the desirable basic intent of the new program will be accepted by many teachers who will then select and shape their own teaching materials toward this end.

As the first large-scale effort in many years to influence the school curriculum in science, with the use of sizable sums of public money, with considerable fanfare and the cooperation of many distinguished people, this Committee's activities are especially important. Should they fail to be reasonably effective or accepted, comparable financing of other efforts would be unlikely. Also, the to-be-desired rapprochement of school and college instructors, on a basis of mutual respect and cooperation, would be diminished and disastrous acrimony might result. Surely we hope not, for science in the schools can be and must be improved. Probably we shall see a modest acceptance of these materials and further evolutionary change, perhaps at a rate less than that desired by the Committee.

Mathematics and Physics

EDWARD P. ROSENBAUM

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Since 1952 Mr. Edward P. Rosenbaum has been a member of the Board of Editors of *Scientific American.* Prior to assuming this post he was a teacher of mathematics and physics at the Milford School in Connecticut. Mr. Rosenbaum, a graduate of Yale University, brings to his present position considerable experience as a writer, principally for radio and television programs.

One way of looking at the relation between physics and mathematics courses in high schools is to consider the minimum requirements of subject matter. How much mathematics must a student know in order to negotiate the PSSC course? On the evidence of the first two volumes of the new physics text the answer is: not much.

Indeed, the authors have leaned over backward in an effort to make physics accessible to the mathematically unwashed. In discussing the image formed by a plane mirror they prove two triangles congruent by folding one over on the other. The section on Snell's law speaks of "what are known as the sines of the angles" and goes on to explain that "the sines of all angles have been tabulated."

What is actually presupposed? An understanding of ratio; some knowledge of exponents and radicals, of graphs and interpolation; the ability to solve simple algebraic equations; a smattering of geometry including the Pythagorean theorem. Logarithms are mentioned in one problem ("if you have studied" them). The list may not be exhaustive, but it is representative. And all in all it comes to considerably less than the material traditionally covered in the first two years of high school math.

One might conclude, then, that the mathematicians and physicists can afford to go pretty much their separate ways in redesigning high school curricula. No matter what mathematics course is decided on, it can hardly avoid the essential topics. There seems to be plenty of time for all the experimenting anyone wants to do. It should be possible to emphasize the deductive structure of algebra, to introduce the notion of sets, to teach the theory of probability — in fact, to modify the approach to high school mathematics in practically any of the ways now under consideration and still give the physics student what he needs.

I think this is true, but it is only part of the story. Mere acquaintance with mathematical subject matter is not enough. One cannot hope to teach real physics, the kind the PSSC is interested in, to a youngster who does not have a firm and confident grasp on the underlying mathematical ideas. How many high school graduates really know what a ratio is? To how many does the phrase, "varies inversely as the square" convey a vivid and immediate meaning? How many understand the concept of a function?

Obviously, the authors of the PSSC texts have asked themselves such questions and they have tried to fill in the gaps they anticipate in the students' mathematical backgrounds. Here I wonder how well they will succeed. For example, will the chapter on "Functions and Scaling", well-written as it is, give a naive student enough of a feel for the ideas of proportions, variables and functional relationships? My suspicion is that it will not. The place for him to become comfortable with these ideas is in his previous mathematics courses.

Consider this passage from the discussion of Snell's law: "One way to look for a convenient expression of *r* and *i* is to try to extend the constancy of the ratio *i*/*r* by finding simple functions of *i* and *r* that maintain the constant ratio at all angles. Following this program we would look for functions which are proportional to the angles when they are small and which compensate for the rise in *i*/*r* when the angles get large. That we shall find such functions before we start is not clear. . . ." Isn't this rather high-powered stuff for a student who has learned, only a few chapters ago, what a direct proportion is, and who is just about to find out for the first time that sin A = a/c and that there are tables of trigonometric functions? I think it would pass completely over his head.

What is important is not so much a specific bit of knowledge (although a previous acquaintance with the trigonometric functions would surely be helpful in this case), but the ability to think in mathematical terms. To the average student this ability does not come easily or quickly. It comes, if at all, from long practice in manipulation and solving problems.

Here, it seems to me, is the essential connection between high-school mathematics and physics, and the essential responsibility of the mathematics program. A student who has not picked up a knack for quantitative reasoning in his mathematics course is not likely to acquire it in physics. And without the knack he is not likely to learn much physics either.

There is no doubt that the traditional mathematics curriculum, in the hands of many teachers, has been unsuccessful. Whether the newer approaches, such as those of the College Board Commission or the Illinois group, will prove more effective is yet to be seen. It would be interesting to talk to physics teachers at schools where these programs have been tried, but I have not done so. Some mathematicians have criticized the Illinois course, and even the commission's proposals, for over-emphasizing abstraction. To a physicist this criticism, if justified, might seem even more serious. My own guess, without any evidence, is that there is some cause for apprehension. A serious attempt to lay bare the axiomatic, deductive structure of mathematics might obscure its usefulness as a tool for analyzing physical problems. The two points of view are not incompatible, but they should both be kept firmly in mind in designing a mathematics program.

The mathematical demands of high school physics are not very great. A curriculum which failed to include the necessary principles would be an obvious failure. But the point is, it seems to me, that the principles should be thoroughly learned in the mathematics course. They can then be used, not taught, in physics. I assume that the PSSC and the new Committee on School Mathematics will work together closely enough to insure that the limited requirements of the physics course are in fact covered.

Finally, I should like to suggest that physics is properly a senior, not a junior subject in high school. In general it seems to me to demand more maturity and insight than elementary chemistry. And it surely requires more mathematics. An average student with a background of three years of math stands to gain much more from his physics course than one who has had only two years. In the first place he has more experience in mathematical reasoning. Also, under a course of study like that proposed by the College Board Commission, he would be equipped to deal with physical principles on a more advanced level. To cite just a couple of examples, he could use trigonometry in his study of vectors and of periodic and wave motions. This would not only provide a deeper understanding of the physics, but would lead to a keener appreciation of the power and beauty of mathematics itself.

Some Observations of the Work of the PSSC

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The work of the Physical Science Study Committee at M.I.T. is such an extensive enterprise that an adequate evaluation could easily be the subject of a master's thesis. These few comments are only subjective observations, serving as an indication of the kind of impression that the project might be making on one section of the educational community.

THE SETTING OF THE PROGRAM

Of the various approaches to the rehabilitation of science education at the high school level, the work of the PSSC is certainly one of the most ambitious in terms of the scope of its efforts, the size of its financial resources, and the caliber of its staff. The enthusiastic and widespread publicity accompanying a program of such prestige has been, and will continue to be of real service in stimulating improvement in high school science instruction.

SOME PUBLIC RELATIONS PROBLEMS

The publicity associated with the program has its own dangers since an extensive educational program conducted in full view of the public does not have the relaxed atmosphere that is most conducive to creative educational effort. A still greater difficulty is that most high school teachers have not in the past been overly impressed with the pedagogic efforts of the universities, especially in the sciences. Some of them may regard efforts of this type as being based on the rather gratuitous assumption that university faculties with a history of neglect in the training of science teachers would be constructively sensitive to their needs in the present educational crisis. Without attempting to pass judgment on this attitude, I would surmise that the work of the PSSC and other comparable organizations would be received with much better grace if it were accompanied with a larger element of humility.

THE PHILOSOPHY OF THE PROGRAM — A PROBLEM

Although one can only have praise for the efforts of the PSSC and the progress they have made within the framework of their orientation which is so well outlined in the First Annual Report, the fact that the work is not a part of a larger plan involving the entire science education curriculum leaves something to be desired. On January 2, 1958, in an invited article on the status of science education for the St. Louis Globe-Democrat the writer noted: "The weaknesses of our thinking in this area are illustrated by the major effort at curriculum reform being undertaken. The Physical Science Study Committee at M.I.T. operating with very substantial grants from the National Science Foundation and a number of other foundations is preparing a one-year course in physics for the high school senior. Although this is unquestionably a very worthy effort, what is needed even more is a strong, positive, and realistic program of educational reform in science at a number of levels. If a student is made to wait until his junior or senior high school year before meeting some really substantial work in science, he will have developed such poor study habits and weak background that he will, as now, avoid this type of work almost completely. It is extremely unfortunate that there is no group seriously working on the overall pattern of science education. Isolated attempts to remedy one part of the science education pattern without relation to the other parts are apt to lead to some convulsive and abortive efforts which will hardly help to revive a system that is pretty close to a state of complete collapse."

If the above prognosis is correct, the major long range value of the program, unless strongly reoriented, will not be that of establishing an improved single high school course in physics but in the stimulation of the rethinking of some aspects of physics instruction.

Another general criticism of the program is that it tends to stabilize the present sequence of science courses in high school, which usually start with General Science in the ninth grade, Biology in the tenth, Chemistry in the eleventh and Physics in the twelfth. This sequence is the order of increasing difficulty as these subjects are now taught. It would appear sounder to present the science courses in order of dependence; thus since biology depends to a substantial extent on chemistry, and chemistry on physics, it would appear desirable to teach physics first, chemistry second, and biology last rather than the present order. Such a sequence is actually being tried in a midwest high school and seems to be doing fairly well.

THE TEXTBOOKS

The decision to go ahead with the publication of this physics text was, according to the First Annual Report, made on the basis of the evaluation of present texts which are described in terms that can be summarized by saying that they are antiquarian in perspective, technological in emphasis, overly inclusive in content, and confused in structure. The physical appearance of the preliminary edition is exceptional and well reflects the extensive efforts involved in the undertaking. The selection of course materials is very sound, assuming one accepts the premise that the study of the most significant aspects of physics in our present educational system should be delayed until the junior or senior year of high school. Another commendable feature of the textbook enterprise is the fresh, spontaneous, live quality of writing. On the negative side it should be noted that the first volume, although having the admirable qualities listed above, is confusing in a number of ways. The laboring of scientific methodology in the first volume is somewhat wearying. I think that in a subject matter course, the appreciation of the scientific enterprise is, for the most part, best obtained as a by-product of good systematic instruction in the fundamentals of the subject rather than by extensive discussion of methodology. The inclusion of a substantial amount of chemistry in the introduction to this physics text does not seem to be one of the more desirable features, in fact, although this may have been done to create a feeling for "the unity of science", as presented, it seems to have had the reverse effect. The overall impression that the first volume gives is that of a very colorful, but a rather shaky, pedagogical venture. I think that the committee showed good judgment in undertaking an immediate revision.

Volume II of the series is a great improvement over Volume I. It is systematic and substantial while still retaining the live quality of Volume I. The major criticism of Volume II goes back to the plan of the course as a one year effort, for much in this volume can be easily and profitably explored at lower grade levels; this is especially true of geometric optics which is, for the most part, an exercise in very elementary algebra and geometry. From the above considerations the writer surmises that in the long run much of the material in the first volume will be omitted and much of that in the second will eventually be taught in the lower high school grades.

LABORATORY EXPERIMENTS

The laboratory experiments may well be the most effective aspect of the work of the PSSC at this point, and continued efforts along these lines might make a major contribution to the teaching of physics. The emphasis on inexpensive equipment is, of course, very admirable, even if not actually as new as claimed. Although such emphasis is most desirable, it should not be permitted to obscure the fact that much scientific work does require sophisticated equipment.

The technical quality of the production of the laboratory manuals is high, the art work and printing are superb. A minor improvement might be effected if the first volume included full references rather than bibliography. The references could indicate the sources of the experiments where the experiments are adaptations, and sources of more sophisticated or different approaches where they exist in the literature. One such reference that comes to mind is that relating to the ripple tank demonstration which was used in England as part of the famous Faraday memorial lectures that were given at Christmas time to school children. The use of such references could aid in giving the manual the scholarly tone that is associated with scientific work.

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The Movies

The movie project is at such an early stage that although the products so far look promising, they are understandably somewhat uneven in quality. The movie dealing with the pressure of light impressed the writer as having some of the same kind of inspirational quality that Professor Teller has been able to put into some of his recent kinescopes on scientific topics. Many of the other movies also had a refreshing approach that should go a long way in obtaining a measure of general acceptance. The level of sophistication of others seemed to be considerably below what might be reasonably expected at the twelfth grade level, and it may well be that they will eventually find their most extensive use at other grade levels.

Future Developments

The activities of various national groups such as the PSSC are part of a number of developments that hold promise for improved instruction in science and mathematics. Until the work of these groups has been extensively tried in practice, however, the elementary and high schools will be constantly bewildered, in their attempts to find the best solution to their problems. Actual classroom reports are needed, and these take time.

In view of the situation, the procedure of the *Harvard Educational Review* in looking for independent evaluations is an admirable one, and could probably be expanded to advantage. Evaluation on a national scale is desperately needed in order to enable both the foundations that support the projects, and the school systems that use them, to make the most judicious use of their resources.

Even with such evaluations, the educational community is still without effective overall guidance in science. Although the PSSC does not claim to perform the whole job which needs to be done, one conclusion may well be that even single course revisions are insidious in creating the illusion that they represent an adequate solution to the rehabilitation of science education in this country. One of the most pathetic sights on the current educational horizon is the myriads of local school committees, whose members have little or no scientific training, trying to produce a modern science curriculum. The result is a multiplicity of confused syllabi combining the less attractive aspects of prescribed pedagogy courses, with the more irrelevant features of the folklore of scientific pedagogy. The answer to this problem would seem to be the production of a vertically developing sequence of courses starting at the kindergarten and going to the graduate university level. This type of complete curriculum could be best developed by a comparatively small number of hardheaded but imaginative educators and scientists; this together with a realistic training program for science teachers would now appear to be essential to our national existence. The writer hopes that such a development is closer than the present kinds of thinking suggest, for the time is now very late.

Implications of the PSSC for Technical Institutes

BUREAU OF E
LIBRARY

H. Russell Beatty

President, Wentworth Institute

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We at Wentworth Institute have followed with great interest the work of the Physical Science Study Committee in the development of a new secondary school course in Physics. This project is an important first step in the improvement of physical science education in America, and the vast amount of study and effort that is being expended will, we are sure, produce beneficial results, not only in the physical sciences, but throughout both secondary and higher education.

This program aims at developing clear concepts of physical science fundamentals, as well as a logical order of presentation of subject matter. While certain important subject matter topics previously treated in secondary school physics have been deleted, it is more important to establish clear concepts of a limited number of essential fundamentals rather than hazy concepts of many fundamentals. Real progress along this line has been made with the publication of Parts I and II of the Textbook.

The laboratory methods of instruction which have been developed by the Physical Science Study Committee to date enable the students to build their own experiments inexpensively; this notion is, in our opinion, sound. Many students learn physical science concepts best through experimental procedures rather than textbook descriptions. Since students who are generally attracted to Wentworth Institute are among those who learn best "by doing" rather than by the written or spoken word alone, we appreciate the value of concrete experimental procedures to assist in clarifying abstract concepts.

The film library now in preparation should also be helpful in clarifying abstract concepts. The monographs will enable students in whom a desire for additional knowledge of the subject has been stimulated by classroom and laboratory experiences, to pursue their studies and experimentation independently to the limit of their capacity. This is good teaching, since it takes individual differences into account and provides for them.

What is the implication of such high school science preparation for students seeking an education in technical institutes such as Wentworth Institute? They offer two-year programs to prepare high school graduates with adequate mathematical and physical science backgrounds for semi-professional careers as engineering or industrial technicians. The student who wishes to attend a technical institute pursues the same academic preparation in the secondary school as those who aspire to careers in engineering or the physical sciences. However, technical institutes will admit students who are academically less gifted in mathematics and the physical sciences than will colleges of engineering or science. The college preparatory student with a "C" record can be successful, providing he is able to grasp physical science and technical concepts through concrete applications, that is, providing he is a student with the practical mind rather than an abstract thinker.

Wentworth Institute, specifically, offers two kinds of programs: one is designed to prepare young men for careers as engineering technicians, leading to an Associate in Engineering degree; the other is designed to prepare young men for careers as industrial technicians, leading to a Certificate of Graduation. We require a college preparatory course in physics for admission to the first program; although we will admit a strong mathematics student with chemistry as a substitute, we prefer physics. We also prefer that students seeking admission to one of our four industrial technician courses have a secondary school physics course prior to admissions to meet their science requirement. Students who complete the Physical Science Study Committee's secondary school course in physics will certainly be as acceptable to Wentworth Institute, during the period in which this project is being developed, as those who come from high schools where the conventional physics course is being taught. We are hopeful that with time the improved concepts developed in the minds of the students by the new program will enable these students to adapt themselves more readily to our Physics and Engineering Science instruction. We have not had the opportunity to evaluate the new program by actual experience with students of it, but we look forward to such evaluation when it does become possible.

Wentworth Institute redesigned its own physics course offerings in the spring of 1955 in order to teach sound, heat, and light prior to Newtonian mechanics because of the more logical approach, and also the less intensive mathematics requirement of this arrangement during the first semester. The fact that the Physical Science Study Committee reached this same conclusion independently pleased us very much. Students who take the new physical science program in high school should find it easier to make the transition from secondary school to the Wentworth Institute college level physics programs than students from conventional high school physics courses.

Without doubt, we shall need to make changes in our program to relate it more closely to the new high school program, assuming it is widely adopted. During the transition period, when we shall be receiving students from both kinds of high school programs, we shall gradually change our subject matter and methods of presentation to build on the new foundation. We shall need to make changes also in experimental procedures in order to develop an even more fundamentally sound approach to the teaching of Physics. With our program already somewhat correlated with the new secondary school physical science approach, we hope we will be able to do a competent educational job in the physical and engineering sciences, should the majority of high school students admitted to Wentworth in the future have the new physical science background. We shall need guidance and help from the Physical Science Study Committee in making this transition, and it is our hope that the work of this Committee will be extended into the area of higher education sufficiently to assure maximum benefits from the new developments in the secondary school field.

The Physics Course of the Physical Science Study Committee — A View from the Classroom

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Many of the nearly three hundred teachers who committed themselves to teaching the physics course of the Physical Science Study Committee during the present school year of its first large-scale trial did so largely because they were in sympathy with the aims of the new program. In the "General Report of the Physical Science Study Committee, March 25, 1957", the Committee's point of view which enlisted our support is exemplified in these stated aims:

> "(1) to plan a course of study in which the major developments of physics, up to the present time, are presented as a logical and integrated whole;
>
> "(2) to present physics as an intellectual and cultural pursuit which is part of present-day human activity and achievement;
>
> "(3) to assist existing physics teachers, by means of various teaching aids, to carry out the proposed program."

It is pertinent to inquire at this time, when the PSSC physics course is in its third month of being taught to some 12,500 students in approximately five hundred classes throughout the country, to what extent the aims of the Committee are being achieved by the course as it now stands. Thus, this report will examine how well each of the above aims is being realized in a few of the classes where the course is taught. In considering the remarks which follow, the reader should bear in mind that, while most of the points raised have been discussed with several of my colleagues who are also teaching the PSSC course this year, the view presented comes chiefly from one instructor teaching physics in a rather typical, average-size public school.

I.

As an indication of the present status of the course, we may profitably begin by examining how this year's teachers of the course are being assisted by PSSC in carrying out the program. This assistance falls into three categories: orientation, supplying of teaching materials, and the Teacher's Guide.

1.) As regards orientation, virtually every teacher giving the course this year attended a six-week institute during the past summer or received an equivalent introduction to the PSSC course. At the University of Connecticut, where I attended the summer institute, the presentation included a rather thorough lecture course in Modern Physics, and a laboratory, lecture, and discussion course in the methods and materials of the PSSC high school physics course. Unfortunately, although a very fair presentation was made of the PSSC course materials which were then available, undue emphasis was placed on the Modern Physics course. Institute participants gained familiarity with a great many of the techniques and experiments in the PSSC course and, although largely by implication, they came into contact with the immediate objectives which it seeks to achieve. These include the understanding by the student of the nature, function, and limitations of physical laws, an appreciation of the use of models in science, and a recognition of the unity of the physical sciences. The principal shortcoming of the instruction at the summer institute was the failure to highlight explicitly these and similar objectives of the PSSC course, resulting in an incomplete orientation of the participating teachers.

2.) A remarkable production and distribution system is maintained by PSSC to assure that teachers in the trial group receive the necessary teaching materials as quickly as possible. The necessity for revisions and various technical delays have made it impossible for most materials to be ready at the beginning of the academic year 1958-59, as once planned, so that now there is an almost ceaseless flow of textbook volumes, laboratory guides, laboratory supplies, films, and tests to the schools. The projected series of supplementary monographs will not be available this year, but a wealth of other printed material and supplies is reaching the teachers in the trial group. It is doubtful that such a volume of teaching aids has ever been offered to science teachers before, but it is a sizeable task for the teacher to keep tabs on it all and to fit the pieces together. The various teaching tools sometimes arrive quite disarrayed, so that the teacher must arrange them in a satisfactory manner for teaching purposes. Such time-consuming, non-teaching activity might have been reduced to a large degree, if PSSC could have proceeded more slowly toward the present large-scale trial of the course.

3.) The third means of assisting the teachers of the PSSC course is the Teacher's Guide. This massive work, being prepared in mimeographed form by a group at the University of Illinois, contains comments, teaching suggestions, and supplementary information for every chapter and section of the textbook, as well as the solutions to all problems. Of necessity, as the textbook is being revised, parts of the Teacher's Guide have to be revised correspondingly, with the result that sections of the Teacher's Guide drift piecemeal to the teachers in the schools. Teacher's Guide materials for volumes 3 and 4 are expected to be available after January 1959, whereas the Teacher's Guide materials for volumes 1 and 2 are already completed and nearly fully distributed. The material in the parts of the Teacher's Guide which have been distributed is thoroughly detailed, frequently quite thoughtful, and always extremely helpful to the teacher. Though a preliminary effort, its format and completeness approach perfection to a high degree. Perhaps the only serious lack in the Teacher's Guide material for volume 1 and 2 is its failure to stress frequently enough the major objectives of the course and to point out how a particular topic or chapter is directed toward one or several of these objectives. We may hope that this failing will be corrected when the Teacher's Guide materials are revised and recast at the close of this trial year.

II.

The foregoing resumé of the assistance being channeled continually to the teachers in the trial group makes it readily apparent that the PSSC physics course is at present in a state of rapid evolution. Is the course evolving in the direction of presenting physics as an intellectual and cultural pursuit, as is suggested in the Committee's point of view? The textbook, the keystone of the course, should indicate the answer to this question.

Since its organization and content was dictated by the basic philosophy of the Committee, the text inevitably seeks to highlight the intellectual and cultural aspects of physics. Indeed, in volumes 1 and 2, attention is devoted, both explicitly and implicitly, to these matters, but a great deal of space is also given to the details of the physical arguments. These arguments are often fascinating in themselves, and it is certainly desirable to have them; but high school students reading the text frequently become enmeshed in the details and must be guided through them to understand science in a larger perspective. It would seem to be a help to the young people using the text if the intellectual and cultural values of physics could be more prominently displayed, so that they would not be so likely to be missed. One hopes this will be done as the textbook evolves.

Thus far, the most successful feature of the course is the laboratory work. Most of the experiments which the students have carried out have been absorbing and meaningful to them. The experiments present genuine problems for solution in the laboratory and the students are excited about solving them. In my class, the laboratory periods have been the high points of the course and the greatest learning has occurred then.

The schedules of the film series and the monograph series, the remaining features of the projected PSSC course, lag so far behind the rest that it is impossible to assess their contribution at this time. Lacking these materials, and lacking the opportunity of gaining familiarity with the latter half of the textbook (which is not yet available), the likelihood is that the teachers in the trial group can not be fully successful in presenting physics as a logical and integrated whole during this trial year. The complete plan of the PSSC course clearly embodies this emphasis on the unity of physics and of all science, and it is unfortunate that this notion will probably not be made fully manifest during this first full-scale trial.

With the physics course of the Physical Science Study Committee in major active use for the first time, teachers who were attracted to the course by the Committee's stated aims find these aims being met in a rather incomplete way during this trial year. In the next year, we look forward to substantial improvements throughout the course, and therefore to a closer approach to these aims.

The Physical Science Study — Will It Succeed?

FREDERICK L. FERRIS, JR.

Educational Testing Service

Mr. Ferris has been with the Educational Testing Service in Princeton, New Jersey since 1953 and is currently serving as Associate Director of the Test Development Division. During the summer of 1957 Mr. Ferris was on leave of absence from E.T.S. while he worked full time for the Physical Science Study Committee. Mr. Ferris graduated from Princeton University in 1947 and, following four years in the Navy, taught science at the Lawrenceville School.

The Physical Science Study Committee course in high school physics looks as though it would go a long way in solving a serious national problem, but it poses some bothersome problems in evaluation. The forward-looking schools that are interested in the program want to see specific and tangible evidence that the new course is indeed teachable at the high school level, that students can profit from it — in short, that the objectives set for it can be accomplished. Foreseeing the need for such evidence, the Physical Science Study Committee built a systematic program of testing and evaluation into the development of the course itself.

The Committee's hope was to produce a sizable portion of the new course for a preliminary tryout in a selected group of schools during the academic year 1957-58. This initial tryout was not to be considered an attempt to evaluate the program. Rather, it was to be a part of the continuing development of course materials themselves, so that the rough spots could be smoothed out and a sound revision of the course could be given and evaluated on a much larger scale during 1958-59.

THE INITIAL EXPERIMENT

Eight secondary schools were selected for the initial experiment with the new course materials during 1957-58. These schools were in no sense picked to be representative of the academic spectrum for which the course was designed. In each case the prime consideration was always the interest and competence of the teacher. To ensure good feedback to the Physical Science Study Committee the teachers in the initial tryout had to be thoroughly familiar with the aims, objectives, and content of the new course. Therefore the selection was limited to those teachers who had spent the summer at MIT working up the course materials.

Since the participating teachers were to meet weekly with the textbook authors, geographic proximity to three regional university centers was also a factor in the final selection. The eight schools chosen for the experiment were:

Browne and Nichols School, Cambridge, Massachusetts
Bronx High School of Science, New York City
The George School, Newtown, Pennsylvania
The Hill School, Pottstown, Pennsylvania
Phillips Exeter Academy, Exeter, New Hampshire
Radnor High School, Wayne, Pennsylvania
Taunton High School, Taunton, Massachusetts
University High School, Urbana, Illinois

In spite of all difficulties, the bulk of the course materials received a thorough trial run during 1957-58. A continuous flow of reports from the teachers kept the Committee fully apprised of classroom developments.

PSSC TESTING PROGRAM

Certainly any teacher considering use of the new course in the future would want to know, among other things, the answers to two critical questions:

1) Is this course realistic and practical for the average high school physics student, or is it the product of a group of starry-eyed idealists?
2) Is the new approach of the PSSC really any better than that which has been used for the past half century?

To get believable answers to these questions, something more than the opinions of enthusiasts was required. Hence the need for tests designed to get an objective and unbiased answer to the first question above. Any answer to the second question, however, would have to await stabilization of the new program and was therefore left for the future.

Two kinds of measures were required to determine just how realistic and practical the new course was for the average student — first, a scholastic aptitude test to see how close to "average" the students were, and second, a series of achievement tests to see how well they were progressing toward the objectives of the course. Control on aptitude was established during the fall of 1957 by administering the School and College Ability Test of the Cooperative Test Series to all students enrolled in the course. The achievement tests were designed to measure not only *what* the student had learned but — even more important — whether he had learned to *use* the ideas of physics in the variety of ways expected of him.

Six such achievement tests were developed along these lines and administered to the total group of students during the tryout year of the PSSC course. The achievement tests served a dual role during this first year. Like the other materials, they were to undergo a "test" themselves in order that they might be revised for future use on the basis of a statistical analysis of student performance. On the other hand, in so far as they were adjudged by the Committee to have sufficient content validity in their preliminary form, they could serve to indicate the extent to which the course was getting across.

RESULTS OF THE TRYOUT YEAR

The first year's experience with the new course was highly gratifying. Student reaction throughout the year was one of enthusiasm. The teachers' main complaint seemed to be that of constantly having to keep class discussion within bounds for the sake of continuity. By the end of the year two simple facts tended to confirm the flow of optimistic reports:

1) Not a single PSSC student requested transfer from the new course to other sections in which the conventional approach was taught, whereas the opposite was frequently true.
2) The eight teachers were unanimous in declaring that they would never want to return to the conventional course most of them had taught for years.

As expected, the aptitude testing revealed that, on the average, the initial group of students was certainly the "upper crust" of the ability range for which the new course was designed. The mean composite verbal and quantitative score was approximately at the 95th percentile of the national norms group. However, the range of scores extended well below the 75th percentile, the latter being the approximate lower limit for which the course was designed. Particular attention was therefore paid to the progress of the lower aptitude students throughout the year.

Of special significance was the student performance on the achievement tests. Prior to administration of any of the latter, fears had been expressed by many of the textbook authors (fears also shared by those constructing the tests) that, although apparently measuring progress toward the course objectives, the level of difficulty of these tests would be far beyond the capabilities of even this select group of students. The fears were unfounded. Successive score distributions and statistical summaries throughout the year showed that these tests were just right for the students tested. So far, the experiment was a success. A little extrapolation from the test data suggested, furthermore, that the course stood a good chance of being highly effective for a group of more typical high school physics students.

As with any new venture of this kind, there were naturally parts of the course in obvious need of revision. Work started forthwith on this task with a view to improved versions for 1958-59. There was often strong disagreement as to what should be changed or omitted and what should not. Furthermore, due allowance had to be made for the extraordinary enthusiasm and motivation of the teachers who were working with equally enthusiastic and motivated students. Certainly these students relished being "guinea pigs" in a year when the coincidental launching of Sputniks focused national attention on "doing something about high school physics."

Despite all of these tempering factors, however, even the most conservative member of the project agreed that the evidence pointed overwhelmingly to one simple conclusion: the course objectives are readily attainable at the high school level, given highly competent teachers and a group of able students.

Two big questions remain unanswered, however:

1) Can the average secondary school physics teacher, without unreasonable effort, become sufficiently familiar with the course content to handle it effectively?

2) Will the course communicate to the total range of students who typically enroll in high school physics?

The academic year 1958-59 should provide the answers to these questions.

PROBLEM OF TEACHER FAMILIARIZATION

Crucial to the success of the Physical Science Study is an adequate program designed to familiarize interested secondary school teachers with the content and philosophy of the new approach. To this end, special Summer Institutes sponsored by the National Science Foundation were held during July and August of 1958 at Bowdoin College, the University of Connecticut, the University of Minnesota, Reed College, and the Oak Ridge Institute for Nuclear Studies.

Some three hundred secondary school teachers selected from a large applicant group spent up to eight weeks of intensive study learning the whys and wherefores of the new curriculum under the tutelage of representatives of the PSSC and the faculties of the respective colleges. A large majority of the three hundred teachers are at present conducting the new course.

Special In-Service Institutes and Academic Year Institutes are currently underway at various colleges and universities throughout the country with a view to an even more widespread use of the PSSC curriculum in 1959-60.

These various institutes appear to provide an effective means of conveying the objectives of the course to the group of teachers now in the field. The PSSC is now also exploring ways of getting the philosophy and subject matter across to the potential teacher of high school physics prior to the completion of his undergraduate training.

1958-59 — A YEAR OF INTERNAL EVALUATION

Some 286 secondary schools are now in the midst of teaching the PSSC course to a group of students totaling nearly 13,000. Virtually all the teachers conducting the course underwent one or another familiarization program of the sort described above.

The Physical Science Study Committee considers this the real "test year" for the course. To this end every effort is being made to obtain evidence both statistical and subjective as to the effectiveness of the new program. The way has been paved for close coordination between teachers in the field and representatives of the PSSC staff. The concern this year is with a self-appraisal rather than with any attempt to measure comparative effectiveness.

Seldom in the past, for a project of this nature, has the groundwork for so extensive and systematic a program of evaluation been laid so long in advance. A full-scale testing program will yield a series of at least thirteen statistical reports based on a battery of one aptitude and twelve achievements tests. With the number of students involved this year, it will be possible not only to draw conclusions of statistical significance relevant to the group as a whole, but also to obtain meaningful data on the effectiveness of the course at various aptitude levels.

A Commentary

by

E. P. Little

The foregoing articles in this issue of the REVIEW were written in the fall of last year, when the PSSC course was just starting its second test year. Much progress has been made since then and my comments, written in February of 1959, can reflect some of the newer developments. Volume III of the text is now in use in the schools, further developments of laboratory apparatus and films have been made, and extensive feedback data from teachers have been accumulated. Even Volume IV is now well defined and in the late stages of final revision for printing. Laboratory guides and teacher's guides have been used and evaluated. But the creative work will continue as a major problem for many months.

An understanding of the ideas and concepts developed in Volume IV is a major objective of the course, yet in many ways this is the most difficult volume to prepare. The material has never before been written in this form for a high school course and only parts of the presentation were taught to students last year. The outline of Volume IV is generally known and the major concepts were presented to teachers in Summer Institutes in 1958. But the unusual material, the lack of previous experience in teaching it, and the lack of time for teachers to become thoroughly familiar with the concepts and experiments suggest that significant changes may yet have to be made. This is one of the reasons for the Committee's plan to continue the test program with preliminary course materials through the school year 1959-60.

This year has been a major challenge to teachers and schools who are using the course. The changes implicit in the PSSC program appear too abrupt to many physics teachers. The risks loom large and in many situations the work load appears impractical. However, the teachers who used the course last year report that this second year is much easier. They know the material better and can handle the multitude of student questions more easily. They know from experience where to slow down, for thorough understanding, and where they can pace the course more rapidly because the students follow the material readily. They are still learning how best to handle the laboratory exercises; the value of the teaching films will not be understood until many more of them have been used by many different teachers. But with all this compromise, teachers all over the country continue to be enthusiastic.

The Committee hopes for a significant increase in the number of schools using the course in the academic year 1959-60. Classroom experience under a variety of conditions will continue to be essential to the success of the program. However, there is no reason why a school which cannot afford to invest in temporary materials, or a teacher who is faced with a demanding schedule should not wait until the fall of 1960 before trying out the PSSC course.

It has often been suggested that the effort devoted to revising a one-year course in high-school physics could be better spent on a more comprehensive program. Such a program might include the entire science curriculum of the elementary and secondary schools, including introductory college courses. It might lead directly to a unification of present offerings in chemistry and physics. Several studies of this scope are underway by various other groups, and a consistent, interrelated approach at all levels is certainly desirable. However, after facing the problems of revising a single course, I must admit that the task of doing everything at once appears formidable if not impossible.

The Committee's early decision to restrict its efforts to a one-year course was perhaps arbitrary. To quote from the first Annual Report, "One matter that was compromised rather than resolved concerned the scope of the new course. Many members pointed out that the interrelationship between physics and chemistry made it inadvisable to erect an arbitrary division between them. It was generally agreed that this was indeed the case, but it was further agreed that an adequate course combining both subjects would require at least two years with consequent complications in attempting to fit it into the existing academic structure. In the end, it was decided that the long-term purpose of the Committee might well be the preparation and encouragement of such a course, but that as a practical matter the Committee would be well advised to restrict its efforts to a one-year physics course. As will be seen however, the Committee has resisted any arbitrary position and a certain amount of chemistry has been included in the syllabus".

In the last analysis it may appear that the high school physics course was a sensible if not the only place to start. We hope that the PSSC program with its strengths and weaknesses can serve as a guide for further development on other academic levels and in other subjects.

Although it may not always be obvious from their enthusiasm for the project at hand, the members of the Physical Science Study Committee have never felt that their's was the only approach to the presentation of physics in high schools. There is certainly no single approach or ideal selection of subject matter. Yet, with certain revisions now apparent and others in the offing, the approach of the Committee appears workable.

The group of professional physicists who first met in 1955 and formed the nucleus of the project were keenly aware of the inadequacies of science instruction on the *secondary* school level. In their university and college teaching assignments, they had long been dissatisfied with the high school background of their students. But even in the earliest planning stages, it was clear that the job could be done only through a close-working relationship between professional scientists, high school teachers, and technical specialists. The original PSSC Steering Committee included Paul Brandwein, Director for Education of the Conservation Foundation, Robert H. Carleton, Executive Secretary, National Science Teachers Association, and Henry Chauncey, President of Educational Testing Service, as well as physicists such as J. R. Zacharias, F. L. Friedman, and W. C. Michels. The earliest definitive work of the Committee on textbook manuscripts and laboratory experiments was performed by university physicists and high school teachers. Writing assignments were made to physicist-teacher teams such as Professor Walter Michels of Bryn Mawr University and Charles C. Smith of Radnor High School, Wayne, Pennsylvania, who worked together preparing the first drafts of Volume II. This kind of co-operation has continued and at the present time high school teachers Thomas J. Dillon of Concord, Massachusetts, Judson Cross of Phillips Exeter, Malcolm Smith of the Putney School, Vermont, form the nucleus of the editorial staff under the direction of Dr. Friedman. During the summers of 1957 and 1958, a total of forty high school teachers joined the Committee to work on films, laboratory guides, experiments, and other aspects of the program.

It was clear at an early stage that large-scale tests in high school classrooms would be necessary before the program could be said to meet the needs of secondary schools. May I quote from my article written in the summer of 1957 and carried in the Science Teacher Volume XXIV, No. 7, November 1957?

"If it [the PSSC program] is to be successful, it will require most of all the co-operation of the high school science teacher. He and his students are the customers for this product. The teacher must try it out, measure carefully its triumphs and its failures, and keep a constant feedback flowing to the physicists, the educators, the editors, the film producers, the designers of apparatus, and all those who are seeking to put the course together. It will succeed in the schoolroom, and in the schoolroom alone; its form must in the end be determined by the schoolroom.

Those of us who are directly associated with the work entertain no doubt that it is an effort worth more labor and more devotion than anything else we do. Every teacher of science by the nature of his profession may feel himself equally associated with the task. Carrying it to a successful conclusion, we will all of us enrich not only our own lives, but the lives of millions of young men and young women in the generations that will follow us, and carry on our work."

Perhaps the enthusiasm of such statements has obscured the open-ended work and co-operative effort between university and high school people which is so apparent to those of us who have been directly associated with the program. In fact, not the least of the lessons learned from this activity is the absolute necessity of such co-operation in any curriculum project on the secondary school level.

This enthusiasm, stemming from the Committee and quickly echoed by other educators, educational writers, and finally by the general press, has given the appearance of a well-organized promotional scheme to sell the PSSC course. On the contrary, our task has been one of holding back rather than pressing forward. The articles, newspaper stories, and public addresses concerning the PSSC program have occurred invariably at the request of editors, writers and organizations outside the Committee. If our work has been in the public eye, we can only be grateful, but it has brought problems. As one of the reviewers stated, "The publicity associated with the program has its own dangers, since an extensive educational program conducted in full view of the public does not have the relaxed atmosphere that is most conducive to creative educational effort".[1] Perhaps without the pressure of this publicity, we would not have moved quite so fast in introducing the preliminary materials into a large number of high schools. However, some such trial was necessary at an early point for feedback purposes.

Except for the completion of Volume 4 materials, the greatest task now facing the Committee is the screening and incorporation of the suggestions made by the Test Group of 270 teachers. We are only beginning this project and look forward to the time when we can pass the results on to the secondary school community.

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[1] Callandra, Alexander, "Some Observations of the Work of the PSSC," *Harvard Educational Review,* (this issue).

Implications for the Classroom of B.F. Skinner's Analysis of Behavior[1]

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WELLS HIVELY

Harvard University

In this article, Mr. Hively suggests ways in which B. F. Skinner's functional analysis of behavior may increase the efficiency and scope of education. One product of Skinnerian analysis is the teaching machine. This device proves to be surprisingly effective in teaching children and adults by its carefully arranged sequence of stimuli and its automatically reinforced responses to each stimulus. The use of the machine may eliminate some of the undesirable aspects of present classroom learning and free the teacher to work toward goals that are best achieved through personal, human interchange between teachers and students.

Wells Hively II is a graduate of Harvard College. He earned his A.M.T. degree at the Harvard Graduate School of Education and subsequently was a teacher in the San Diego, California, Public Schools. Mr. Hively is now a research assistant in the Harvard Department of Psychology where he is helping to develop the teaching machine.

Education is concerned with changing the behavior of students. Knowledge about behavior, then, should be useful to the educator. This article concerns the increasingly clear relevance of knowledge derived from psychological research associated with the work of B. F. Skinner[2] to understanding and improvement of the teaching process.

The existence of *any scientific psychology* has general implications for education which should be mentioned before going on to the particular implications of Skinner's work. A few general remarks may also clarify the point of view that underlies the type of analysis which will be presented here.

Any scientist must begin by assuming that his subject matter behaves in an orderly way. His task is to find the order which he assumes to exist. His success in finding it is measured in terms of his ability to predict and control the action of the system with which he is working. His unambiguous description of the orderliness which he has demonstrated is scientific knowledge.

A science of psychology, then, must begin with the assumption that men are predictable, proceed by predicting and controlling man's behavior, and express orderliness which is found in objective, operational terms. The educator cannot make effective use of the knowledge supplied by such a science unless he is willing to assume, as the scientist does, that behavior can be controlled and that

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[1] Paper presented to the Committee on Relations between Psychology and Education, Division 15 of the American Psychological Association, August 28, 1958.

[2] Dr. Skinner is Professor of Psychology at Harvard University.

that is his job. In using such knowledge, the educator must also subject conventional explanations of educational processes and goals to the operational criteria of scientific discourse.

Skinner's analysis is occasionally called a learning theory, but it is not primarily concerned with learning. Conventional classifications of behavior, — learning, motivation, emotion, and so forth, — tend to break down under his analysis. A search for variables involved in the establishment, maintenance, and change of behavior invades all these fields. Nor is it a "theory" in the sense that it attempts to explain behavior by reference to processes above or beyond empirically observed relationships. It is a functional analysis aimed at discovering relationships between dependent variables in the behavior of organisms and independent variables in their environment.[3] A fundamental relationship in this analysis is that between frequency of response and reinforcement.

In Skinner's terms, a "reinforcement" is an environmental event which, when caused to follow closely upon an item of behavior, increases the frequency with which the organism engages in that behavior. A "positive reinforcer" is something, the *presentation* of which constitutes a reinforcement. A "negative reinforcer" is one the *removal* of which is reinforcing. (Positive and negative reinforcers are often similar to "satisfiers" and "annoyers", but their reinforcing properties are defined only in terms of their effects upon behavior.) The frequency, or "strength", of an item of behavior may be increased by presenting a positive reinforcer or removing a negative reinforcer when the response occurs. The relationship between a response and a reinforcement by virtue of which the response is strengthened is called a "contingency of reinforcement." It has been found that the behavior of animals in the laboratory can be controlled to a large extent by manipulating contingencies of reinforcement, together with other relevant conditions, and comparable results have been obtained with a wide variety of animals and with human children and adults.[4] Perhaps more than anything else, it is the degree of control which has been achieved in the laboratory by manipulating these contingencies which argues for the application of reinforcement principles in the classroom.

As an example of the usefulness of reinforcement principles in the practical control of behavior, suppose for a moment that we are interested in the relationship of psychology to animal training, rather than to the training of people. The following is an abridged list of facts and techniques from the Skinnerian analysis of behavior which would be useful to an animal trainer.

1). Animals in the laboratory can be taught highly complex tasks through the technique of reinforcing a series of responses which gradually approximate the desired behavior. In teaching a dog to roll over, for instance, one might first reinforce sitting, then lying down, then lying on the side, and so on. The technique works because when certain responses are selectively reinforced a general change in the animal's behavior takes place: responses dissimilar to those being reinforced drop out while similar responses occur more frequently. These include new responses, more like the desired behavior, which can in turn be chosen for reinforcement. The rapidity of the resulting change in behavior is often surprising. With this technique a skillful trainer can "shape" an organism's behavior almost at will.

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[3] For a general statement of Skinner's analysis see his *Science and Human Behavior*, New York; Macmillan, 1953.

[4] B. F. Skinner, "The Experimental Analysis of Behavior," *American Scientist*, XLV 1957, No. 4.

2). The precision of the contingency of reinforcement has been found to be extraordinarily important in shaping and maintaining skilled behavior. A pigeon, for instance, is sensitive to differences of a fraction of a second in the time between response and reinforcement. Reinforcement must be immediately contingent upon the desired response; otherwise the animal may be doing something else at the time the reinforcer is actually presented and it is this behavior which will be strengthened.

3). The gross amount of reinforcement obtained by an organism is also important during training. A high overall frequency of reinforcement produces an active, responsive organism. Desired responses are thus more likely to occur and can be reinforced.

4). Once a response has been learned, its strength is delicately related to the schedule by which it continues to be reinforced. By suitable scheduling of reinforcement, behavior can be maintained at very nearly any desired level.

5). The use of negative reinforcers in conditioning complex behavior often has undesirable side effects. Aversive stimuli are likely to elicit many kinds of behavior (such as "timidity," "anxiety," and "aggression") which may conflict with that being taught. Also, since *any* response which avoids or escapes a negative reinforcer is likely to be strengthened, it is difficult for a trainer to make sure that only those responses which he has chosen are reinforced. In other words, the animal may succeed in escaping the negative reinforcer in some unexpected way.

By making use of the foregoing facts and techniques animals can be trained rapidly to perform surprisingly complex tasks. In order to use them, however, the trainer must solve certain practical problems.

He must isolate the animal as far as possible from stimuli which are not within his control and which may elicit behavior incompatible with that which he wishes to teach.

He must eliminate, or carefully control, contingencies of negative reinforcement which may also produce unwanted behavior.

He must locate effective and easily manipulable reinforcers.

He must arrange to make the presentation of these reinforcers precisely contingent upon desired responses.

He must arrange to provide a high overall frequency of reinforcement and to selectively reinforce successive approximations to the required behavior.

He must provide for occasional reinforcement to maintain the behavior in strength once it has been learned.

The similarity of these operations to many of the activities of a skilled private tutor is striking. The tutor attempts to create an atmosphere which is "conducive to study" by eliminating extraneous stimuli. He attempts to overcome the student's anxiety and timidity by removing conditions of negative reinforcement. Finding out the student's interests and gaining his respect and confidence may be thought of as ways of locating effective reinforcers. Providing knowledge of results, pointing out relationships of the subject matter to the student's interests, giving or withholding attention and approval, and so forth are basically manipulations of contingencies of reinforcement. The process by which a skilled tutor adjusts material delicately to the student's level of performance, providing a sequence of problems which "challenge" him but which are "within his ability," is exactly analogous to the technique of shaping behavior by successive approximation. And, finally, a skilled tutor provides for the maintenance of skills and knowledge, once learned, by systematic review.

Many shortcomings of the classroom can be analyzed in the same terms. The main agency of reinforcement in the classroom, particularly in the lower grades, is the teacher. The job of selectively reinforcing the behavior of twenty or more students, no two of whom are likely to emit the same responses at the same time, or to react similarly to the same reinforcers, is (as beginning teachers rapidly discover) very nearly impossible. The individual student in such a situation receives a very small gross amount of reinforcement. When reinforcement does occur, it is only roughly contingent upon the desired behavior. Other members of the class constitute a powerful source of control over the individual which often conflicts with the teacher. The comparable task of training twenty animals at the same time is unthinkable. If one adds to this the undesirable by-products of negative reinforcement which are often present in the classroom it is surprising that any learning takes place at all; that it does is perhaps testimony to the superiority of human beings over animals. Nevertheless the apathy resulting from infrequent reinforcement, the misinformation resulting from slipshod contingencies of reinforcement, the misbehavior resulting from conflicting sources of control, and the anxiety, avoidance, and resentment resulting from negative reinforcement are all too common in the average classroom.

One might object at this point that the techniques used by a good tutor and the problems of individual differences in the classroom have been known for some time. What is the advantage of recasting them in these terms? One advantage is that an analysis in these terms suggests several ways of improving methods of teaching. Teaching by machine is an example.

Basically, a "teaching machine" is a tool designed to shape repertoires of verbal behavior by presenting a carefully arranged sequence of stimuli and automatically reinforcing responses to each stimulus. Stimuli can be presented and responses can be selected automatically for reinforcement in various ways, and several types of teaching machines are currently under investigation at Harvard under Skinner's direction.[5] They differ mainly in the form of response required, — multiple choice, the construction of an answer from a limited number of letters or numerals, or a written answer which is confirmed by comparison with the correct answer. Each appears to be particularly adaptable to certain subject matter and age levels, but all have in common the presentation of a sequence of problems and provision of immediate confirmation of response to each problem. Various kinds of reinforcers could, of course, be made contingent upon correct responses, but so far the relatively subtle ones involved in simply manipulating the machines and materials have proved to be surprisingly effective.

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[5] Most of the investigation has been exploratory and is only beginning to yield controlled data. For a discussion of much of this work, see B. F. Skinner, "Teaching Machines", *Science,* Vol. 128, No. 3330, October 24, 1958, 969-977.

Theoretically, teaching by machine has many advantages. The amount of reinforcement per individual is large, since the student is provided with immediate knowledge of the results of each response to the material. Since the reinforcement is precisely contingent upon correct responses, subtle distinctions can be taught. Careful sequential ordering of problems enables the student to move from simple to complex tasks with maximum probability of success at each step. Responses, once learned, may be maintained by systematically arranging for items to recur throughout the teaching program. Each student, dealing with the material to be learned, unhampered by the limitations of the teacher and of his classmates, may proceed at his own rate.

The idea of automatic confirmation of response is not new. Sidney L. Pressey, among others, has been working with machines which confirm responses in various ways for a number of years.[6] Skinner's primary contribution is the emphasis on a careful programming of stimuli to shape and maintain complex behavior. The basic problem in designing such a program is to arrange for desired responses to occur and then to bring them under the precise control of relevant stimuli. This necessitates a detailed behavioral analysis of the knowledge or skill to be taught. Exactly what is the repertoire of responses, for instance, possessed by a student who knows third grade arithmetic, and what stimuli control it? How are these discrete stimuli and responses interrelated? And what repertoire of behavior is prerequisite to the acquisition of each new response? This kind of analysis is frighteningly complex, but it has at least two important advantages.

Through the use of teaching machines, the analysis can be carried out empirically. By analyzing the students' responses to each item in a teaching program, the program can be progressively rearranged and expanded to achieve any desired degree of efficiency. The designer of a teaching program thus has an important advantage over the textbook writer who also attempts to present material in an effective order, but is prevented in a large part from obtaining detailed information about the effectiveness of the presentation because of various uncontrolled factors involved in the use of the text and in testing in the classroom.

A second advantage of the analysis of subject matter into specific relationships between stimuli and responses is that all specifiable relationships can be taught deliberately. At the end of a teaching program the teacher can be highly confident of just what the student knows, since he has responded correctly to each specified relationship. The need for testing is correspondingly decreased.

It should be mentioned, of course, that teaching machines have certain limitations. Although a careful programming of materials may eliminate many discrepancies in performance now attributed to "individual differences," a machine cannot adjust itself to the individual as well as a private tutor. On the other hand, it should be noted that a careful program probably is more consistent, evenly balanced, and free of idiosyncrasy than an individual teacher. A machine designed to teach verbal behavior cannot directly teach successful social behavior or non-verbal interaction with the environment. This, however, is a limitation of all verbal teaching. Although it can teach techniques of strategy, problem-solving, and critical thinking, a machine is limited (insofar as the students' responses are unpredictable) in its ability to handle controversial material, argument, and the direct guidance of creative behavior. Many of the goals of education are best achieved through the personal, human interchange between teachers and students. It is hoped that teaching machines may help to free the teacher to achieve these goals.

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[6] S. L. Pressey. "A Third and Fourth Contribution toward the Coming Industrial Revolution in Education," *School and Society*, XXXVI (1932), No. 934, 668-672.

In reply to this general method of analysis it will, no doubt, be said that people are not like lower organisms and to treat a child in the classroom like a rat in the laboratory is to deprive him of what makes him distinctively human. But this is just where the implications for education of Skinner's analysis of behavior seem greatest. There is growing evidence that some sort of contingency of reinforcement is basic to that change in behavior in all organisms which is called learning. Humans differ widely from animals in their greater responsiveness to secondary reinforcers and in the role played by verbal behavior. But the differences seem to be of degree and complexity rather than of kind. A functional analysis of verbal behavior and the "higher mental processes" promises to be both rigorous and productive[7]. Educational research grounded in this type of analysis is likely to have a considerable effect on future educational practices. Teaching machines may, in the long run, be even more productive as tools for research in higher mental processes than as classroom aids.

Teaching machines have widespread potentialities both in increasing the efficiency of classroom teaching and as tools for educational research, but they are only one of the tangible contributions to education suggested by Skinner's functional analysis of behavior. The analysis suggests a great variety of ways to set about immediately increasing the efficiency and the scope of education. It may make its greatest contribution by providing a fruitful framework for further research, by focusing the attention of educators on the need for rigorous behavioral analysis of educational processes and outcomes, and by emphasizing the importance for the classroom of a detailed analysis of the interchange between the pupil and his environment which produces learning.

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[7] B. F. Skinner, *Verbal Behavior*, New York: Appleton-Century-Crofts, 1957.

What is Expected of the Soviet Kindergarten?

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As a contribution to our knowledge of the educational system in the Soviet Union, this author recently had material translated from two Russian sources, *Sovietskaia Pedagogika* and *Public Education in the USSR.* This material focuses on the concepts and principles that have guided educational practice in Soviet schools for children of pre-school age. These excerpts reveal that even the pre-school education in Russia is regarded as politically significant.

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Since the firing of Sputnik I on October 4, 1957, there has been unprecedented interest in Soviet education. Most of the attention has been focussed upon the programs of secondary and higher education, but, since the student who reaches these levels of the educational ladder has been exposed to an earlier program of guided development, upon which the advanced and specialized work must depend, the importance of scrutinizing the earlier periods of education is evident.

Lacking facility with the Russian language, most school people in the United States must rely upon translations to obtain information about Soviet schools. Unfortunately, there is no organized program for the preparation of such translations as would build a proper reference source for scholarly study of Soviet educational literature. Such an enterprise would require financial provisions which are not generally a part of the budgets of our professional institutions.

An illustration of the kind of Soviet educational literature which would be of interest and value to American educators is *Sovietskaia Pedagogika,* the monthly journal of the Academy of Pedagogical Sciences of the RSFSR. The Academy is the official group of Soviet specialists in education and is responsible for the conduct and coordination of all research by which educational practice is to be guided. This monthly periodical, along with other publications of the Academy, throws light on the issues and trends which are under consideration or which are taking root in the system.

The Academy of Pedagogical Sciences of the RSFSR recently published a yearbook, *Public Education in the USSR,*[1] on the occasion of the 40th anniversary of the October Revolution. This volume, as yet not translated, gives a comprehensive balance sheet of the developments which have contributed to the evolution of the Soviet educational system since 1917 and contains a chapter devoted to signal developments in early childhood education.

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[1] Editors I. A. Kairov, N. K. Goncharov, N. A. Konstantinov, F. F. Koroley, M. P. Malyshev, and V. Z. Smirnov, *Public Education in the USSR.* The Academy of Pedagogical Sciences, Moscow, 1957.

Material from these two illustrative sources was recently translated, at the request of this writer, some of which is presented in the discussion of some basic trends in Soviet pre-school education which follows. The excerpts cited from the above sources were chosen because they demonstrate the particular significance which Soviet educational leadership attaches to certain concepts and principles which underlie educational practice in the Soviet schools for children of pre-school age.

I. Historical Highlights in Soviet Pre-School Education

The 1957 Yearbook of the Academy of Pedagogical Sciences of the RSFSR points specifically to certain milestones in the development of Soviet pre-school education. The first official approval of a program of pre-school education was issued by the VIII Congress of the Communist Party of the Soviet Union in 1919. At that time, Lenin was the guiding spirit of the movement. He is credited with making clear the political significance which pre-school education, as was to be true of all levels of the Soviet educational system, possessed. The major aims of early childhood education were conceived to be: the liberation of women to join the working force of the nation; State care for the welfare of mothers and children; and the early provision of a Communist education.

In the same year, April 1919, the First Pan-Russian Congress on Pre-School Education was convened. It formulated several basic principles which became guidelines for the nursery schools and more especially for the kindergartens:

- — The problems of pre-school education are one with the problems of later schooling and aim at educating the future citizens of the Soviet Republic.
- — The school and the kindergarten or nursery school will fulfill their purpose only if daily contact exists between education on the one hand, and the interests of the new social order on the other hand.
- — Each age has its own mental and physical characteristics which must be taken into account in pre-school education.
- — Social education through the pre-school institutions must contribute to the transformation of the old family and to the formation of common tasks for proper family and societal development.
- — Educational work in the kindergarten must be carried out in the mother tongue of the child, which will be used to introduce the socialistic content permeating our society.
- — Competent institutions must prepare skilled workers, capable of teaching children in their mother tongue and providing minorities with appropriate assistance in their language.
- — The teachers working in the kindergartens must not only be specially trained and know children, but they must also under-

stand the new tasks of education and be able to work with the people.

— Much study must be devoted to the nature of the child and especially to his physical development.[2]

Soon, however, there were misgivings about the political and educational orientation of the teaching personnel. It seemed that too many teachers had been "contaminated by Western conceptions of educational methods," and were diffident toward the definitions of communist education which Lenin had expounded to a Congress of Communist Youth in 1920. As a consequence, the Second Pan-Russian Congress on Pre-School Education held in 1921 severely criticized the Froebel and Montessori systems and the other theories of free education with their "idealistic conceptions about the autonomous development of the child and the non-political nature of education." The Congress adopted a resolution for the preparation of trained educators from the workers' class. The first proletarian school for pre-school teachers was opened in Moscow, where the curriculum laid heavy emphasis upon the social and political education of the students and upon new educational methods. The important principles that were established in this reform pattern of teacher education stressed that the aims and the tasks of education in the Soviet kindergarten "were to be determined by the class interests of the revolutionary working class, which called for a generation that could replace it and continue with the job of building the socialist society."[3]

In the period which followed, there was further shaping of a frame of reference for Soviet education. With respect to pre-school education, the 1957 Yearbook of the Academy of Pedagogical Sciences singles out the following developments as significant achievements:

> "During the 1920's, specialized commissions were formed. Much attention was devoted to the spoken word and to books for children. The old children's literature was analyzed and new demands were made. Books slated for printing were tested on audiences of children. Writers visited kindergartens to study the interests and needs of children. Materials were assembled for story telling and were published. A pamphlet for parents dealing with the upbringing of children in the family was also published.
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> "In 1931, after the Central Committee of the Communist Party issued its decisions on schools, the Pre-School Division of the Commissariat for Public Education pointed out certain defects in pre-school education, such as trying to impart to children social and political knowledge which was unintelligible to them and the underestimation of play. Plans were made for the elimination of these defects.
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> "In 1934, new programs of education in the kindergarten were published for physical training, artistic development, sculpting, drawing, and the development of initial mathematical concepts. These programs indicated the scope of knowledge and skills for each

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[2] *Op cit.*, p. 75.

[3] *Op. cit.*, pp. 76-77.

age level. A time-table for each age group, both for the winter and the summer, was issued.

"In 1937, the Commissariat for Public Education organized a symposium of the most outstanding pre-school educators. It was demonstrated factually that the individual approach permitted the education and the re-education of even the most 'difficult' children.

"In 1938, a new Guide for the Pre-School Educator was published. It emphasized the decisive part played by the teacher. It was demanded that his or her work be carried out according to a plan and a system, not only during activities in the classroom but also in the course of all aspects of daily living. Moreover, the education of the children in a spirit of collectivism should be coupled with the study and respect of individual characteristics of each child. Artistic education was again given a prominent place.

"The Great Patriotic War confronted kindergartens with new tasks. It became more necessary than ever to educate the children in a spirit of patriotism, collectivism, organization, discipline, and boldness. Many conferences for pre-school workers were held, of which the most interesting was the one held in Leningrad in 1944. Here reports on the following questions were given: the education of the children for the love of their fatherland during conditions of besiegement; the education of the children in the spirit of Soviet patriotism based on the heroic struggle of the Soviet army and of the workers in Leningrad; the education of pre-school children for the love of the mother language and for national literature; observation of the natural phenomena in Leningrad during the period of the blockade. . . . Much attention at these conferences was given to the physical training and the hardening of the children and to the question of their nutrition. New models of children's furniture, toys, and games were exhibited. Teachers were greatly helped by the publication of the periodical, *Pre-School Education*.[4]

This chronology of what have been regarded as the key lines of development in Soviet pre-school education provides some clues to the *what* and *how* of current pre-school education in the Soviet Union. A philosophical doctrine was established for the direction of the educational program and curriculum structuring became a vital concern, with specific areas emerging for emphasis.

The Yearbook further cites some evidence of the growing importance of pre-school education in the total educational scheme and the drive for the expansion of pre-school institutions throughout the Soviet Union.

"The Council of Ministers of the USSR resolved that in all sizeable residential projects, five per cent of the space was to be reserved for pre-school institutions; and all enterprises employing more than 500 women must establish kindergartens. The XIX Congress of the Communist Party decided that the network of pre-school institutions

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[4] *Op. cit.*, pp. 77-78.

> was to be increased by 40 per cent. Hence, while there were 751,890 children in the kindergartens of the RSFSR in 1940, the figures in 1955 were 1,226,396 in the RSFSR and 1,730,841 in the USSR."[5]

The expanding school system, coupled with the social, economic, and political aspirations of the Kremlin after World War II, gave additional impetus to research into the content, methods, and objectives of the curriculum at the pre-school level. An area of research which has had penetrating effects upon educational methods has been the study of the psychology of learning. The Yearbook reports that the teachings of Ivan Petrovich Pavlov, the physiologist, who had died in 1936 at the age of eighty-seven, were revived and accepted as a proper scientific base for the kind of instructional efficiency which Soviet educators were seeking.

> "Discussions in the Academy of Sciences and the Academy of Medical Sciences concerning the physiological ideas of Professor I. P. Pavlov have led to a revision of the physiology, psychology, and hygiene of children. The doctrine of Pavlov on the activity of the higher nervous system dealt a blow to the remnant of idealistic conceptions about the autonomous development of the child's personality and his creative activity. I. P. Pavlov demonstrated that the 'autonomous creation of the soul' does not and cannot exist. All acquired habits and associations are formed in the cortex of the brain by way of practice. The great physiologist has discovered through which mechanisms and physiological processes man acquires skills and habits, obtains permanent knowledge, and develops standards of behavior. He has shown the part that the spoken word plays in this process and has demonstrated the preponderant influence of teaching and education. Pavlov's doctrine has been the basis of many investigations in pre-school education, which have been published during the last years."[6]

With the development of the network of pre-school institutions, research was directed also toward unifying and harmonizing the educational work in the kindergarten with the work of the formal school, specifically in order to insure an adequate preparation of the children for the curriculum of the regular school. Subsequent, official action for the development of the pre-school curriculum was focussed upon the substance of the curriculum and the efficiency of the instructional methods. Systematic instruction which would emphasize the intellectual development of pre-school children became a major concern. The Yearbook reports, however, that there were still teachers who were inclined to permit their children to engage in entirely too much "free and undirected" activity and play.

> "One of the obstacles to preparation for formal schooling was the survival of some elements of the theory of 'free and spontaneous' education. No one contested the necessity of carrying out in the kindergarten prescribed learning activities; but, in fact, these activities

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[5] *Ibid.*, p. 81.
[6] *Ibid.*, p. 81.

> were treated as 'free activities.' The part of the teacher in directing the activities was in most cases reduced to getting the group together and providing the children a common assignment, without indicating, explaining, and demonstrating what each child was bound to do. Such an organization did not mobilize and did not orient the attention, the will power, and the psychic capacities of the children. The children did not acquire habits of discipline and organization; they did not learn how to obey the instructions of the teacher and how to implement these instructions in a purposeful manner."[7]
>
> "Up to very recent times, insufficient attention was paid to the connection and interaction between play and learning activities. The practice of the best kindergartens has proved that it is impossible to give a correct solution to the problem without establishing a natural interrelationship between the two. In the last few years, many new didactic games have been created for the junior, middle, and senior children of pre-school age and many studies have been devoted to the methodology of teacher leadership over didactic games."[8]

Official curriculum guides, issued in 1951 and 1954, attempted to spell out the kinds of compulsory activities which the teacher should direct in the kindergartens, particularly with regard to such areas of learning as correct speech, familiarity with the environment, construction activities, and the didactic uses of play.

II. A CURRENT ISSUE

A researcher of pedagogical theories in the Academy of Pedagogical Sciences, in a recent article,[9] provides some cogent clarifications of the current emphasis on deliberate and substantive teaching at the pre-school level. A. P. Usova indicates that the question of actual teaching has assumed critical importance among the theoretical questions discussed by Soviet specialists in pre-school education. She points out further that this problem is germane to the task of efficient Communist education for Soviet citizens.

> "In the Soviet system of pre-school education, every means at our disposal, including teaching, are subordinated to the task of providing a Communist upbringing. Consequently, teaching must be considered as a means to exercise a real influence upon the children, an influence which will produce definite educational results."[10]

Usova seeks to dispel the conceptions that, unlike the case of formal schooling, pre-school education should rely on incidental learnings and that children absorb automatically the influences of their society and the experiences in which they engage daily. This faulty thinking, she avers, is a direct outcome of the pragmatic educational philosophy, which serves only to weaken and to eliminate the didactic content of pre-school education. Instead, the following features of any teaching situation should be observed: "1) teaching is carried out according to didactic rules, based on psychology and aimed at transmitting knowledge and skills; 2) *it is tied to the teaching functions to be discharged by the teacher; and 3) it is of an organized nature,* built according to a determined program and conducted with a *class group for the achievement by all of the* children of a determined level of development."[11]

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[7] *Ibid.*, p. 82.

[8] *Ibid.*, p. 84.

[9] A. P. Usova: "The Distinguishing Features of Teaching in the Kindergarten", *Sovietskaia Pedagogika*, 22, April 1958, pp. 65-74.

[10] *Ibid.*, p. 65.

Research findings in support of this didactic approach are cited as having revealed two essential values for young children:

> "In our view, pre-school education is aimed essentially at the formation in children of correct representations or conceptions of the surroundings or milieu and at the accumulation of rich and varied experiences with the senses. In the course of their games and their spontaneous relations with people, nature, and things, children receive their orientations and conceptions. At the same time, in the process of education, we provide the children, in an organized manner, with the representations which we consider important for their development.
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> "The latest findings show also that the most important changes which enter into the conscience of children aged three to six, under the influence of education, find their expression essentially in the broadening of the scope and the richness of their conceptions, as well as in the movement from a lower to a higher type of generalization. This shows that education influences not only the scope of the knowledge of the child, but also the very nature of his mental processes."[12]

Usova concedes that Soviet teachers have been making an effort to function instructively in sponsoring some games, gymnastics, and work activities. Yet, there is need for more systematic determination of the body of content which pre-school children should be mastering in the Soviet kindergartens:

> "Often, teaching programs do not propose to impart to the child any new knowledge about purposes, people, or things, but attempt only to focus the attention of the child upon what is around him, which he has seen many times. The aim should be to teach him how to classify, discriminate, compare, and designate what he sees by the proper words. All of these mental operations, which are significant for the development of the child even at the pre-school stage, constitute a full body of education. At the same time, new skills and knowledge are imparted — drawing, construction, speech, etc. The teaching of reading and writing appear under these circumstances as the crowning and not the starting stage in the educational work of the kindergarten."[13]

Of major importance in pre-school education is the development of rich and precise language usage on the part of children.

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[11] *Ibid.*, p. 66.
[12] *Ibid.*, p. 68.
[13] *Ibid.*, p. 68-69.

> "A special feature of pre-school education is its *oral* and *pre-book* nature. These terms are employed in order to characterize the most important feature of pre-school education, due to the age of the pupils: the pre-schooler gets his knowledge and skills by numerous oral means, but mainly by the teacher's questions and answers, indications, explanations, and talks. The textbook appears only as a prospect, which becomes real at the next stage, in formal schooling.
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> The oral language feature of pre-school education presupposes, of course, the use of numerous and varied means for enlivening and stimulating the receptivity of the child. The creation of opportunities for him to act in varied ways such as sculpting, collecting objects, the frequent use of objects and pictures, and play are all examples of preparatory mental stimulations. These demand maximum care in order to insure that everything is expressed with the greatest accuracy from the language viewpoint.
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> Research has shown that this oral language aspect of education has a very great importance in the development of the child, as it introduces him to the various forms of literary language. The precise speech of the educator forms the speech of the children and assures that words become significant as the conveyors of precise and concrete thought. Extensive improvement of the pupils' speech in the course of their education creates the basis for the further development of their mental faculties."[14]

This systematic program of instruction in the kindergarten must not be left to chance or whim. A definite portion of the school day should be set aside for lessons.

> "Lessons insure the continuous, systematic education of the children. They are strictly scheduled as to the moment of the day and as to their duration. They should take place in the morning. For the junior and middle groups, a lesson should be 15-20 minutes; and in the senior group, there should be two lessons per day of 25 minutes each. Account is thus taken of time as one substantive influence in the child's milieu. It is proven that it is precisely the duration of the lesson which introduces the child, for the first time, to time as a framework for mental activity.
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> "By regulating the duration and scheduling of the lessons, there is a positive effect upon the proper use of the didactic rules for a lesson. Education then assumes the nature of instruction, including definite indications of how to observe, how to construct, etc., all of which require specific actions on the part of each child. This arrangement provides a psychological fulcrum which attracts the attention of children, directs their mental activity and their moral behavior, and forms their personality. As research has shown, it is only under the influence of this method that the capacity of the child to learn from

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[14] *Ibid.*, p. 69.

> an adult assumes the nature of an educational activity in its elementary manifestations: to listen to an adult; to hear him; to look and to see; to act in a purposeful manner, etc."[15]

It is not intended that organized and definite instructional periods for pre-school children will overlook the merits of play and group interaction. However, their values are said to be enhanced by direction and planned guidance.

> "Experience shows that there is no reason to transform education into play. Didactic games and all play aspects of education have a great significance when certain psychic processes of the child are activated. . . . Didactic games and play methods give the child the opportunity to repeat and to practice. By taking into account the needs of the age-levels and by provoking a proper emotional uplift, didactic games open to the child many opportunities for moving about, coming into contact with the other children, introducing variety, and rendering educational activity more interesting. Significant differences should appear in the games for the youngest as compared with the senior pre-school age. Account should be taken not only of the ages of the children, but also of their progress in the educational process."[16]

Nor are the interpersonal relations among children in the class group to be minimized; they too have a part to play in reinforcing the learnings which should take place during the organized instructional periods.

> "During lessons, relations of the teacher with the children and of the children with each other assume a form differing from that which prevailed during play or in the course of general daily living. The complex problem is to create within the group conditions favorable for each child, to unite all of them through common interests, and to obtain from them the correct behavior. . . . The moral satisfaction with the results of one's own work or the group's work, or the achievement of a classmate is a substantial factor which insures friendly relations among the children. Observation reveals that in the process of education, children do gradually develop the right attitude toward themselves and others. The influence of the teacher must be such that the child, while working individually feels the moral support of the teacher and the other children.
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> The organized attitudes of children become a mass phenomenon. The teacher does not have to ask for their attention. She does not have to call them to order concerning their behavior. Observation has shown that this organized comportment of the children is due to their interest in their work. Thus, lessons solve a series of problems of real and proper upbringing, such as the development of concentration, attention, a sense of organization, right perception of the surroundings, and above all of the adult's word. The child who has passed through kindergarten perceives and acquires determined

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[15] *Ibid.*, p. 82.

[16] *Ibid.*, pp. 69-70.

> skills more fully and more deeply. He reacts to external events with more speed and correctness. He knows how to concentrate on a job. Thus, pre-school education does not only aim at imparting the maximum of knowledge or determined skills, but also at the development and the formation of the personality."[17]

A common criticism which has been voiced against the movement for organized instruction in the Soviet kindergarten is that it will enforce mechanical or rote responses from the children and lead them to mere imitation. Usova replies to this criticism:

> "Researchers had to devise methods which would insure the development of activity and autonomy in children; and this has proved possible. On the other hand, when one is concerned with the development of mental independence, then the main effort consists of giving intellectual problems to the child for independent solution. It is indispensable to apply varied kinds of intellectual work. One of the best ways is to use the experiences of the child in games and in his relations with other children and adults. Thus the child is requested to use these experiences as sources of subjects for stories, for drawing, for the preparation of simple problems. This gives more activity to his thoughts, emboldens him, and emphasizes the interesting features of his personality. Once he has learned how to tell stories on the basis of a sample and how to construct by having been educated to use certain devices, the child becomes able to compose his own stories and to create by himself."[18]

The over-all meaning of this campaign for planned teaching in the Soviet kindergarten is summarized as follows:

> "The whole educational program at this pre-school level has been advancing to higher stages. For historical reasons, over many years, the physical development and the preservation of the health of the children were the main concerns in the kindergarten. Now it is the mental education and the development of the child which are to be the goals. Education is aimed at more complete and more varied development of the capacities of the child on the basis of his empirical knowledge and elementary skills. It is also aimed at the discovery of his individual capacities and thus seeks to contribute to the development of such psychic factors as thought, speech, imagination, and memory. Education perfects the forms of behavior through the use of braking processes. At the same time, it insures favorable conditions for the development of children who, for reasons stemming from their family life, need direction the most. It creates the primary conditions for the development of gifted children. Such planned teaching reinforces the leading role of the kindergarten teacher and at the same time demands from him higher education and more complete didactic pedagogical preparation. It also facilitates for the children and the

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[17] *Ibid.*, pp. 70-71.

[18] *Ibid.*, p. 71.

teachers the transition of the children from the pre-school level to the formal school."[19]

III. Summary

The translated excerpts from the 1957 Yearbook of the Soviet Academy of Pedagogical Sciences and from the article of one of the research specialists of the Academy indicate that serious attention has been directed to clarifying the educational process which would produce results in young children, commensurate with the demands of the political and social aspirations of the Soviet Union. A corps of specialists are charged with the official function of analyzing and projecting educational procedures, through research, conferences, and publications, which in turn constitute directives for teachers' actions with class groups. Apparently in-service teacher education remains a persistent problem if the proper implementation of the proposed approaches to educating the Soviet pre-school child is to be insured. There has been regret over the continuing tendency of some teachers, for whatever reasons, to fail to grasp and effect the approved techniques of instruction. On the other hand, it is pointed out that where experimental programs are conducted diligently, the results are substantial in terms of the desired habits, scholarship, and attitudes of the children.

Of significance, surely, is the current concern for making the pre-school years of education count substantially in supplying a background of knowledge, skills, and self-controls upon which formal schooling can build. The emphasis is on the early acquisition by children of precise oral language usage, general information, habits of thinking, and work skills, which are to be developed through planned and systematic instruction by kindergarten teachers and which are to be aimed at prescribed standards. It would appear that the assumption is that every moment counts and that the learning capacities of pre-school children are not to be underestimated.

Careful study of the official curriculum publications and other professional literature issued by the educational authorities of the USSR would afford illuminating views of the educational engineering which the Soviet Union has been undertaking. For the purposes of gaining insight into the comparative approaches to education and more importantly of perceiving the types of development which members of a significant segment of the world society value and promote, intensive study of the primary sources of professional information concerning education in the Soviet Union is urged.

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[19] *Ibid.*, p. 72.

"Negro vs. White Intelligence" - An Answer

Frank C. J. McGurk

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Dr. Frank C. J. McGurk claimed national attention when his "A Scientist's Report on Race Differences" appeared in the September twenty-first 1956 edition of *U. S. News and World Report.* A refutation of the thesis of that article was selected for publication in last year's spring issue of the Harvard Educational Review. In the following pages Dr. McGurk takes exception to many of the statements made by Messrs. McCord and Demerath, authors of the refutation.

Dr. McGurk is an associate professor of psychology at Villanova University and is currently working on heredity factors in human development. He holds a Doctor of Philosophy degree from the Catholic University of America.

In the Spring, 1958 issue of the *Harvard Educational Review,* McCord and Demerath (9) took issue with some of my previously published findings on the changes in the diffierence between Negro and white psychological test performances since 1918 (15). McCord and Demerath (whom I shall, hereafter, refer to as the Authors) presented some of the misunderstandings that have been expressed in other places (5, 19). They also accused me of various sorts of bias. Finally, they presented a study which they considered a refutation of my point of view. I should like to comment on these matters.

About the Misunderstandings

The Authors show two general types of misunderstanding of my former publications. The first type is that the Authors apparently thought that I was interested in "intelligence" differences between Negroes and whites. The second type is that the Authors believed that I was interested in racial test score differences.

"Intelligence"

In their criticism of my former work, the Authors referred repeatedly to racial differences in "intelligence," and by such references, the Authors created the impression that I, too, was interested in such a problem. This is not so. Aside from quotations, the word "intelligence" as a synonym for psychological test results does not appear in any of my former publications (13, 14, 15, 16). That psychological tests measure the mental capacity that is intelligence involves assumptions that I choose not to make. Neither do I choose to define that mental capacity as something which is measured by an "intelligence" test.

Psychological tests may be used as predictors of any human capacity only when it is empirically demonstrated that they do predict that clearly defined capacity. Among other human capacities, psychological tests are useful predictors of scholastic achievement of groups of children, and I prefer to discuss the problem of racial differences in test scores as predictive of differences in scholastic achievement for these two racial groups. In taking this position, I am, therefore, accepting the statistical validity of psychological tests, and rejecting all types of logical validity of psychological tests.

Race Differences vs. Changes in Race Differences

In many places in their article, the Authors presented statements designed either to show that there were no race differences, or that race differences were really cultural differences and, as such, did not exist as true race differences. In their presentation of these statements as criticisms of my position, the Authors created the impression that the existence of race differences was also my problem. This is not so, either.

The existence of Negro-white test score differences is hardly debatable. As far as the empirical data are concerned, the literature shows clearly that Negroes, as a group of subjects, obtain lower mean test scores than whites, as a group of subjects. For the inclusive period of 1937 to 1950, not one study appeared in the literature which showed that the mean test score of Negroes equalled or exceeded the mean test score of the group of whites with which the Negroes were compared. The problem of whether there are race differences in psychological test performance has been affirmed repeatedly; it has also been affirmed by all those social scientists who contend that racial test score differences are caused by racial cultural differences. In order that something be caused, that something must be.

My former publications were concerned with the problem of whether the observed racial test score difference changed with changes in cultural differences. I was, therefore, interested in testing what has often been called the culture hypothesis — i.e., that the empirical mean test score differences between Negroes and whites are the result of differences between the socioeconomic status of the Negroes, and the socioeconomic status of the whites.

In order to test the culture hypothesis, it must be shown that, under a given set of socioeconomic factors, an observed racial test score difference changes when the socioeconomic factors change. In terms of the culture hypothesis as so stated, one must demonstrate that the Negro-white test score difference, observed under an unfavorable set of socioeconomic factors, decreases as the socioeconomic factors become more favorable for the Negro. This is what Klineberg means when he states that differences between Negro and white mean test scores tend to disappear when the socioeconomic differences between Negroes and whites become less and less (7). One must, therefore, begin with a clearly specified Negro-white test score difference obtained under socioeconomic factors that are unfavorable for the Negroes, and end with a Negro-white test score difference when the socioeconomic factors are more favorable for the Negro than they were previously. The socioeconomic factors under which the Negroes live at the end do not have to be identical with the socioeconomic factors under which the whites live at the end. If the culture hypothesis has any meaning, it is necessary only to show that, at the end, the socioeconomic condition of the Negroes and the whites was more alike than the socioeconomic conditions of these two groups were at the beginning, and that, accompanying this decrease in the difference between the socioeconomic factors for Negroes and whites, there was a decrease in the difference between the mean test scores of Negroes and whites.

My article (15) which the Authors criticize, was concerned with the testing of the culture hypothesis, not with whether there were race differences in mean test scores. I was interested in showing whether the empirical data that had been published between 1937 and 1950 supported or failed to support the culture hypothesis. Incidentally, I made it quite clear that I was concerned only with the data that had been published between 1937 and 1950 (15, p. 93).

ABOUT BIAS

In several places in their article, the Authors have accused me of two general types of deliberate bias. The first type is that I omitted what the Authors consider important studies that contradicted my viewpoint (9, p. 124). The second type is that the Authors think that I omitted those critical parts of the studies which I reviewed that were also contradictory of my viewpoint (9, pp. 122-124).

The Selection of the Studies

I mentioned before in this paper that, in my previous work, I had limited my survey of the literature to those articles that had been published between 1937 and 1950, inclusive (15, p. 93). In that period, only six studies were published, the six that I reviewed, where the authors presented adequate test score data for both Negroes and whites. Without data for both racial groups, presented so that overlap could be computed, the cultural hypothesis could not be tested.

The Authors' charge that I deliberately failed to mention Clark's Los Angeles study (4), Klineberg's New York study (6), and Long's Washington study (8) is quite true. Clark published in 1923; Klineberg published in 1935 originally; and Long published in 1934.

Even if the above three studies had been published in the time period in which I was interested, these studies could not have been uesd. Clark's data were published in frequency tables with large, unequal class intervals, and the class intervals at both ends of his tables were open. From such tables, computation of the appropriate statistics was impossible. Klineberg and Long presented data for changes in Negro scores only; they presented no data for Negro-white differences. The only possible conclusion that could be drawn from the data of Klineberg and Long is that the mean Negro test score increases as residence in New York or Washington increases. Statements about Negro-white test score differences, based on Klineberg's or Long's data are pure speculations.

The omission of the above three studies was deliberate.

I also omitted five other studies which were published in the specified time period, which were not mentioned by the Authors. They were omitted for one of the reasons that Clark's study was omitted — the data were so presented that overlap data could not be computed from them. In four of these five studies (1, 3, 11, 20), the mean scores of the Negroes were inferior to the mean scores of the whites. In the remaining study (2), the author confined himself mainly to speculations about the inferiority of the Negro without presenting mean differences.

In addition, I omitted 24 studies, all published in the period of 1937-1950, which, like Klineberg (6) and Long (8) did not present test score data for the whites. These studies are identified in Appendix A.

It should be clear now that, in the presentation of my six studies (15), I was not attempting to present a biased version of the Negro's test performance. In addition to the above 29 studies which I deliberately eliminated, I also eliminated one further study which I certainly would not have done if I were seeking to build the evidence to suit my bias; McGraw (10), in 1931, had shown that, for Negro and white infants, Negro overlap of the white mean was 29%.

Critical Omissions

The Authors charge (9, pp. 122-124) that, in the presentation of my six studies (15), I omitted comments, made by the writers of these six studies, that were contradictory to my point of view. There is a grain of truth in this charge. For example, in Tanser's study, the author stated in two places (18, p. 169; p. 172) that he considered the socioeconomic status of the Negroes to be inferior to that of the whites. The Authors claim that I deliberately omitted this statement by Tanser so as to bias the evidence (9, p. 122).

In his opening chapter, Tanser has this to say about the socioeconomic condition of the Negro in Kent County:

> Here the Negro in 1939, as in 1852, with few exceptions, (to quote again the words of Dr. Willis) "is not only free, but he is on a level, in regard to every political and social advantage, with the white man." He may attend the white man's church (where he is usually made quite welcome), he intermingles quite freely with the whites at public concerts, he may sit in any seat in the public theatres, he may ride side by side with the White man on any public conveyance, he may enter and be served in any public hotel or restaurant, he may own property or live in any part of the city or country, his children are entitled to attend the same public elementary and secondary schools as attended by white children, he may work where he likes or travel where he pleases — in short, he enjoys the same privileges as any other Canadian citizen, and he is certainly not subjected to the pronounced colour prejudices which undoubtedly still prevail in many parts of the United States, particularly in the South. (18, pp. 20-21).

It seems from the above that Tanser felt quite clearly that the socioeconomic opportunities for the Negroes were extremely close to those for the whites; if the Negroes' socioeconomic status were so low, relative to that of the whites, it was not because the opportunity for socioeconomic equality was not present.

In general, my interest in these six articles was not in what the authors said about their findings; I was interested primarily in what data the authors presented. Specifically, I was interested in Negro overlap data, and I was not at all concerned with the authors' interpretations of these data. On this purely descriptive basis, I found that, regardless of all the possible uncontrolled variables in the six studies presented, Negro overlap was remarkably constant. In terms of the culture hypothesis, the constancy of the Negro overlap indicated that, with whatever uncontrolled variables there were in the studies, the Negro-white difference found in the 1937-1950 period had not changed over the 1918 Negro-white difference (21). If these uncontrolled variables were so important in Negro-white test score differences, the consistency of the Negro overlap should not have occurred. One thing is clear, and I think that the Authors' criticism has helped to make it so; these uncontrolled socioeconomic variables about which the Authors talk have no demonstrable effect on changes in Negro-white test score differences. The test scores of Negroes and whites are in the same relationship now as they were in 1918. The various differences in socioeconomic environments of the Negroes, between 1918 and 1950, have not altered the Negro-white test score relationship.

ABOUT AUTHORITIES

The Authors have twitted me about my not having given enough attention to Klineberg's work (9, p. 124), and they indicated that some well known social scientists (9, p. 120), and certain newspapers, magazines, and social agencies (9, p. 121) have condemned my conclusions.

I have commented on this type of criticism elsewhere (12), and I need only repeat now that I am not concerned with what well-known people think about the problem. I am concerned with facts about the problem, and whether these are produced by well-known people, or little-known people matters not at all. Where facts are available, and they are available in this problem, the speculations of authorities are of no greater value than any other testimonial.

ABOUT THE AUTHORS' STUDY

The Authors concluded their paper with the presentation of certain data, and from these data the Authors drew conclusions which, they stated, refute my former findings. These data were collected from children of families of ". . . the lower class or the lower-middle class." (9, p. 125). These data included test scores for the Kuhlman-Anderson and the Stanford Binet, from about eleven times as many white children as Negro children. Regarding the differences between Negro-white test scores, for both tests, the Authors state that there was ". . . no significant difference." (9, p. 126). Later, in the presentation of the Kuhlman-Anderson scores for matched pairs of Negroes and whites, the Authors repeat this statement (9, p. 126).

In either case, the Authors' statements that no significant differences appeared between Negro and white test scores is not demonstrated by them. The Authors did not test their central tendencies for statistically significant differences. Instead, they imitated Clark (4), and inspected their data. From this inspection, they speculated that the median scores for both racial groups fell in the same large class interval of scores and that, therefore, the median scores for both racial groups were generally of the same magnitude. Such inspections are not demonstrations of significant differences, and their statements about significant differences are without factual support.

The Authors imitated Clark (4) in another respect. They presented their data in a few very large class intervals, with both ends of every frequency table open. This makes it impossible for any reader to verify their conclusions.

The most confusing thing about the Authors' treatment of their data is their use of chi-square. Beneath each of their tables of data, there is some statement about the significance of chi-square, but no other data about that statistic. In Tables 1, 2, 5, and 9, two sets of obtained data are presented against test scores. In these Tables, it appears that the Authors computed chi-square between these two sets of obtained data.

Chi-square is an appropriate technique for determining whether an obtained set of data differs from a theoretical, random set of data. When so used, chi-square enables the user to state the probability that a distribution of empirical data differs from a random distribution of those data. Chi-square is not an appropriate technique for testing the difference between two empirical (obtained) distributions such as the Authors present in Tables 1, 2, 5, and 9.

Chi-square is not an appropriate statistic for the determination of the significance of differences between measures of central tendency. However, this seems to be the use to which the Authors put this statistic in the above mentioned Tables. Chi-square is not a substitute for correlation, which seems to be the Authors' use of it in their remaining Tables.

Therefore, all of the Authors' conclusions that are based on their misuse of chi-square may be ignored. This appears to include all of the Authors' conclusions.

An inspection of the test score data presented by the Authors suggests that there may not be a significant difference between Negro and white performance. Such a finding should be expected, and it puts the Authors in the position of having verified my former finding. I have previously presented evidence to show that, when both Negroes and whites are of low socioeconomic status, test score differences between these racial socioeconomic groups are not statistically significant (13). I also pointed out (13) that, when both racial groups are of low socioeconomic status, and the comparison between them is made with culturally weighted test questions, Negroes obtain a mean score slightly, but not significantly, higher than that of the white subjects. In spite of this, the Authors felt obliged to comment: "Only one interesting, albeit non-significant, trend appeared in both tests: more whites than Negroes exhibited sub-normal intelligence; a discomforting finding for the followers of McGurk." (9, p. 126). It should be clear that such a finding from subjects of such socioeconomic status is quite in keeping with my former published comments, and my present expectation.

SUMMARY

I wish it to be clear that I do not regard psychological test scores as measures of that mental capacity known as intelligence. Psychological tests are useful in the prediction of scholastic achievement of groups of children, and appropriate empirical investigation may indicate other, specific uses.

Race differences in test scores are not identical with changes in race differences in test scores. The latter involves the testing of what is often called the culture hypothesis of race differences. My interest was in the testing of the culture hypothesis.

The six studies which I previously presented were the only studies available which presented data for the testing of the culture hpyothesis for the time period which I covered.

The charge that I omitted critical parts of the six studies that I reviewed is groundless. My interest in those studies was in the data which they presented, and not in the interpretations of the authors of the studies. The data of the six studies were remarkably consistent despite the different conditions under which each of the studies was done.

I wish to make it clear, once again, that I do not believe that opinions, no matter how authoritative, have any place of value in a situation where facts are available. The available facts indicate without question that the social and economic manipulations of the past 35 years have not changed the psychological test score relationship between Negroes and whites. Until such a change is demonstrated empirically, the opinions of authorities that changes have occurred, or will occur, are meaningless.

APPENDIX A

Studies Published between 1937 and 1950, inclusive, Which Contained Data for Negro Subjects Only

Anderson, W. E. The personality characteristics of 153 Negro pupils; Dunbar High School, Okmulgee, Oklahoma. *J. Negro Educ.*, 1947, *16*, 44-48.

Anon. General Studies of colleges for Negroes. *U. S. Off. Educ., Natl. Survey Higher Educ. of Negroes, Misc. #6, Vol. 2.* Washington, D. C.: Govt. Printing Off., 1942.

Bean, K. L. Negro responses to verbal and nonverbal test material. *J. Psychol.*, 1942, *13*, 343-353.

Beckman, A. S. The intelligence of a Negro high school population in a northern city. *J. Genet. Psychol.*, 1939, *54*, 327-336.

Canady, H. G. The American caste system, and the question of Negro intelligence. *J. Educ. Psychol.*, 1942, *33*, 161-172.

Canady, H. G. A comparative study of the intelligence test scores of Negroes living under varied environmental conditions. *Summ. Doct. Diss. Northw. Univ.*, 1942, *9*, 276-281.

Canady, H. G. Sex differences in intelligence among Negro college freshmen. *J. appl. Psychol.*, 1938, *22*, 437-439.

Canady, H. G. A study of sex differences in intelligence test scores among 1306 Negro college freshmen. *J. Negro Educ.*, 1943, *12*, 167-172.

Canady, H. G., Buxton, C., & Galliland, A. R. A scale for measurement of the social environment of Negro youth. *J. Negro Educ.*, 1942, *11*, 4-14.

Hines, J. S. & Manley, A. E. The success of students in a Negro liberal arts college. *J. Negro Educ.*, 1950, *19*, 446-473

Jenkins, M. D. & Randall, C. M. Differential character of superior and unselected Negro college students. *J. Soc. Psychol.*, 1948, *27*, 187-202.

Johnson, C. E. *Growing up in the black belt.* Washington, D. C.: American Council on Education, 1941.

Loevinger, Jane. Intelligence as related to socioeconomic factors. *Yearbk. Nat. Soc. Stud. Educ.*, 1940, *39*, (1), 159-210.

Murray, Walter I. The IQ and social class in the Negro caste. *Southwest J.*, 1949, *4*, 187-201.

Passamanick, B. A comparative study of the behavioral development of Negro infants. *J. Genet. Psychol.*, 1946, *69*, 3-44.

Roberts, S. O. Socioeconomic status and performance of Negro college women, north and south, on the ACE. *Amer. Psychologist*, 1946, *1*, 253.

Roberts, S. O. Socioeconomic status and academic performance of Negro college women, north and south. *Amer. Psychologist*, 1947, *2*, 314-315.

Roberts, S. O. Socioeconomic status and the performance on the ACE of Negro college freshmen, veterans and nonveterans, from the north and the south. *Amer. Psychologist*, 1948, *3*, 266.

Roberts, S. O. Socioeconomic status and performance over a four year period on the ACE of Negro college women from the north and south. *Amer. Psychologist*, 1950, *5*, 295.

Robinson, M. E. & Meenes, M. The relationship between test intelligence of third grade Negro children and the occupation of their parents. *J. Negro Educ.*, 1947, *16*, 136-141.

Stalnaker, J. M. The identification of the best southern Negro high school seniors. *Sci. Mon., N. Y.*, 1948, *67*, 237-239.

Tanser, H. A. Intelligence of Negroes of mixed blood in Canada. *J. Negro Educ.*, 1941, *10*, 650-652.

Watts, F. P. A comparative study of delinquent and non-delinquent Negro boys. *J. Negro Educ.*, 1941, *10*, 190-207.

Witty, P. Researches upon the American Negro. *Yearbk. Natl. Soc. Stud. Educ.*, 1940, *39*, (1), 257-269.

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11. McGurk, F. C. J.: "Comparative test scores of Negro and white school children in Richmond, Va.," *J. Educ. Psychol.*, 34: 473-484, 1943.
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14. McGurk, F. C. J.: *The performance of Negro and white high school seniors on cultural and noncultural psychological test questions*, Washington, D. C.; Catholic University Press, 1951 (microcard).
15. McGurk, F. C. J.: "A scientist's report on race differences," *U. S. News and World Report*, 92-96, 21 Sept. 1956.
16. McGurk, F. C. J.: "Socioeconomic status and culturally weighted test scores of Negro subjects," *J. appl. Psychol.*, 37: 276-277, 1953.
17. Shuey, A. M.: "A comparison of Negro and white college students by means of the ACPE," *J. Psychol.*, 14: 35-52, 1942.
18. Tanser, H. A.: *The settlement of Negroes in Kent County, Ontario, etc. (Kent County Negroes)*, Chatham, Ontario: The Shepard Publishing Co., 1939.
19. *UNESCO Report on Race.* Press release, 18 July 1950.
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Book Reviews

***The Climate of Learning. A Constructive Attack on Complacency in American Colleges.* Ordway Tead. The John Dewey Society Lectureship. Number One. Foreword by A. W. Anderson. New York, Harper and Brothers, 1958. 62 pages. $2.50.**

Ordway Tead's recent book contains almost too many suggestions and ideas with which all of us would agree — the main theme being that the college should be a community of teachers and students, the binding force of which is to spring from the dedication of all participants to the task of enriching human minds and characters. This has by now been said so often and in so many beautiful words that one almost hesitates to read new books about the liberal arts college and its desirable "climate of learning."

This small book, however, approaches its objective by an almost complete avoidance of generalities; within its limited space it is extremely detailed and practical. And it can be so because the author is able to utilize the unusual quantity and quality of experiences he has acquired as vice-president and editor of one of our largest publishing houses, as former chairman of the Board of Higher Education, New York City, as chairman of the Board of Trustees of Briarcliff College, and as friend, adviser, and guest of a great number of our institutions of higher learning.

The first half of the book deals with the problem of "learning." How can we, as teachers, help the student to learn how to learn and thus to like to learn and to keep on learning, even if the pressure of examinations is over. Like all of us seriously interested in the art of conveying the heritage of scholarship to the younger generation, Ordway Tead is troubled by the ease of conscience with which too many college teachers neglect to think about the affective and motivational aspects of learning. He misses the leadership in our smaller colleges that could push the professors beyond the mastery of their material toward a more sympathetic participation in the total intellectual and moral life of the student.

After the basic part about learning, the author proceeds to discuss the more tactical and administrative side of the American college: the role of the trustees and the faculty, the selection of students, guidance, college employment policies, maintenance of property, "the role of the curriculum" (which, from my point of view, he should have discussed in relation with, or as part of, the chapter on learning), and sundry other topics, among them relations with secondary schools. Sometimes, while confronted with the quick succession of so many small chapters, I had too much the feeling of an outline waiting to be transformed into a larger work; but when I laid the book aside I remembered a sentence on one of the earlier pages: "But I ask the student of learning to hear me through with suspended judgment since it is an entire strategy I would like to advance as one unified program." And I agreed that in this he had been successful.

I would like to see this book in the hands of the many college administrators who might be so overwhelmed by the daily burden of details that they hardly find time to contemplate the comprehensiveness of their task.

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***Personality and Motivation Structure and Measurement.* Raymond B. Cattell. World Book Company. Yonkers-on-Hudson, New York, 1957. 948 pp. $9.25.**

I.

Raymond B. Cattell was one of the first psychologists to discover and to exploit the advantages of integrated long-term programmatic research. This book, presented as a survey of ten years' progress in the factor-analytic study of basic personality dimensions, demonstrates the broad scope, the careful integration of great masses of data, and the high level of sustained productivity which this integration of research effort has made possible.

The book begins with a discussion of principles of personality research, types of data, and multivariate methods of analysis, particularly (but not exclusively) of factor analysis. Next Cattell describes the main factors which have been discovered in ratings, questionnaires, and performance tests. The third section of the book deals with research on motivation, first taking data gathered as individual differences and analyzed through the familiar methods of R technique correlation and factor analysis, and then proceeding to the less familiar problems of personality fluctuation, transitory states, and P technique. The last section of the book is devoted to the tests developed in the research reported earlier and their applications in clinical and industrial psychology. Possible applications to educational psychology are suggested in several places, although somewhat casually.

Factor analytic research is technical, it attempts to summarize vast amounts of data in esoteric tables, and it is descriptive and inductive rather than deductive in method. Any book filled with factor analytic studies is therefore likely to be difficult to read. Cattell has attempted to deal with this problem by putting several technical sections into appendices, but the reader who has no taste for formulae and tables will find some of the chapters hard going. Cattell indicates that the book is intended for graduate and advanced undergraduate courses in personality, as well as being a handbook of sorts for the practicing research or applied psychologist. Some of the discussions seem to be addressed more to other factor analysts than to students, but the energetic student will find the book more dynamic, original, and provocative than any other current book in its area. Because it is an attempt at a comprehensive integration of personality research, it is likely to give the student a good deal more real knowledge, though possibly less conversational psychology, than a mere eclectic survey.

It is surprising, however, to read a book on personality in which projective tests, such as the Rorschach and the TAT, are considered only as poor substitutes for questionnaires and laboratory tests. It may be that Cattell is right in his dismissal of projective methods, but those clinicians who have relied on them for years will probably consider that their use would have given added depth to Cattell's work. For example, Cattell's hypothesis that potential for "long-circuiting of impulse gratification" explains his dimension of "surgency-desurgency" could have been investigated by examining the amount of movement in his subjects' Rorschachs, or, more directly, by examining their TATs to see if "long-circuiting" subjects had longer time spans in their stories. By failing to include projective tests Cattell arbitrarily minimizes the whole realm of fantasy, hope, and dreams ("fantasy can be considered an extreme form of misperception" p. 475), a serious limitation in a book that aims to cover the whole scope of personality.

The school psychologist, as well as other psychologists working with non-college groups, will frequently suspect that the factors described here, and the tests based on them, are more influenced by age, class, and area than Cattell indicates. The negative relationship that Cattell reports between interest in sports and interest in mechanical things, for example, may be due to these being alternative leisure interests in a college population with limited leisure time — in a high school group, particularly in a lower class sample, the relationship might well be the reverse. Cattell's note on "compensatory trait relations at a fixed hurdle" (p. 558) could probably be used to demonstrate that several of his obtained relationships are due to his reliance on college and military samples. He has, however, made a large-scale effort to deal with this problem in recent years, and some of his factors have been validated in a variety of groups.

The age of computers is now well under way, and anyone interested in what personality research is likely to be in the future might devote some reflection to this book. Large scale factor analysis no longer presents prohibitive computational problems, and factor analytic studies are likely to flourish in the next few years. Those psychologists and educators who see in factor analysis a reflection of an age of technology and departmentalization, of satisfaction with averages and approximations, of fascination with big tests and samples for the sake of bigness, and of disregard for the individual, might learn something from Cattell's work on the integration of personality and on P technique. Those who hope that factor analysis will be the best road to a mature science of personality will find here some reinforcement for their view.

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Moral Values in Public Education, Lessons from the Kentucky Experience. **Ellis Ford Hartford. Harper and Bros. New York: 1958. 358 pp. $4.00.**

In 1946 the Superintendent of Public Instruction of the State of Kentucky appointed a committee, chaired by J. Mansir Tydings of the Lincoln Foundation, "to study and recommend appropriate action on the need for effective teaching of moral and spiritual values in the public schools of Kentucky," (p. 4).

William Clayton Bower of the Divinity School of the University of Chicago was appointed a consultant to the committee, and this group, somewhat augmented in 1948, enunciated the "Guiding Principles" of the Kentucky Movement. Broadly paraphrased, these are:

1. Moral and spiritual education is designed to provide the pupil with an understanding of his relations to nature and society, to emphasize the moral and spiritual nature of these relations, and to enable him to develop a philosophy of life.
2. Separation between church and state should be observed and no religious instruction should be permitted in the public schools.
3. Moral and spiritual values are potentially present "in any and every experience of growing persons in their interaction with their natural, social, and cosmic world . . ." (p. 5). To be effective, these values must be experienced by the pupil directly and explicitly.
4. The school acts as a laboratory in which normal social experiences should be analyzed for their inherent moral and spiritual implications and the pupil helped to define alternative actions and implement the chosen alternatives.
5. The teaching methods used should encourage "the abilities and habits of discrimination, constructive criticism, self-reliance, and cooperation," (p. 6).
6. The program should emphasize moral and spiritual values in the whole range of curricular and co-curricular experiences, and should be integrated into the total school program.
7. All community agencies concerned with the growth and development of children and young people

should be encouraged to coöperate with the program.

8. The program should be developed coöperatively by teachers, supervisors, and administrators.

9. The program should be experimental and subject to refinement in the light of later experience.

To implement the "Guiding Principles," six pilot schools were chosen to coöperate in developing a program of emphasis on moral and spiritual values, and a summer workshop was held at the University of Kentucky to assist selected members of their faculties to develop materials and techniques for the programs. Both the workshops and the experimental programs have continued since 1949 and this book is a recounting and evaluation of the Kentucky Movement by a member of the university faculty who has been prominent in the leadership of the Movement.

Particularly in the last decade, an impressive number of educators and educational groups have issued statements about the importance of character education and training for values in the public schools. Although the Kentucky Movement was generated by local concern for this particular responsibility, the 1951 report of the Educational Policies Commission, "Moral and Spiritual Values in the Public Schools," represents the statement on a national level which is most in accord with the spirit and purpose of the Kentucky Movement.

Ten of the fifteen chapters in the book describe in considerable detail the programs of emphasis on moral and spiritual values in the pilot schools and activities in the summer workshops and extension courses. These chapters are preceded by ones which describe the genesis of the Kentucky Movement and its subsequent character and operation, the historical events which are responsible for the secular aspect of our public school system, and the "theoretical" assumptions from which the Kentucky Movement proceeds. The concluding chapters deal with attempts at evaluation of the program and a general review of the Movement.

The Kentucky Movement, it appears from this book, is a program whose particular character represents a sort of ultimate compromise among all the conflicting pressures which are created when the public schools embark on a conscious program of moral and spiritual education. The activities and programs described are such as to arouse the least objection from sensitive individuals and groups. This observation is not intended in criticism, because the program was not created, necessarily, simply by asking, "What can we get away with?" Rather the architects of the Movement deserve high praise for their positive attempt not only to work out the permissible area for the public schools, but also for their willingness to test their conclusions.

Philip Jacobson of the American Jewish Committee was a consultant to one of the summer workshops. His analysis of the problems involved in creating such a program seems particularly acute, and the principles he suggests are similar in spirit to those adopted by the Kentucky Movement.

He points out that the demand that public schools assume responsibility for "non-sectarian" religious education ignores the historic difficulty of getting diverse religious groups to agree on the content of such a curriculum. Where public school systems have attempted such instruction, typically in social studies, some rather ironic rewriting of history has occurred. The kindest comment that can be made about programs which count the church membership of signers of the Declaration of Independence, emphasize the Mayflower Compact and the public statements of political figures, and then pass hurriedly over the persecution of Roger Williams, the secular Constitution, and the Ku Klux Klan, is that they don't tell the whole story and, incidentally, don't prove very much about religion.

Jacobson takes particular issue with the position of the New York City Board of Superintendents that moral values must be based on religious beliefs, since such a position is an affront to some Americans who maintain that it is possible to live a moral life without belief in a Divine Being. Does, for instance, the statement of the New York City Board imply that teachers must believe in a Deity before they can teach moral and spiritual values? Jacobson's conclusion, which seems to be in agreement with the general tenor of the Kentucky Movement, is that religious instruction should be left entirely to home, church, and synagogue, and that the schools should concern themselves only with assisting children to make decisions that are moral in terms of ". . . sanctions deriving from law, justice, property rights, personal integrity, group approval, and other democratically accepted ideas, not excluding personal religious convictions," (p. 263).

The programs in the pilot schools seem, generally, to have followed this principle with highly interesting and, to this reviewer, somewhat disconcerting results. In a program which relentlessly emphasizes moral and spiritual values in normal educational and social experiences, an insistent kind of secular, middle-class, "Goody-Two-Shoes" religion is established which is as humorless and potentially restrictive as the traditional brand can be, but which lacks the esthetic and emotional power of traditional religion. Perhaps this latter impression is the product of the style and rather uncritical enthusiasm of the chapters which describe the pilot school programs. Although these chapters are, in some ways, the most important in the book, they are the least effective since the author's finely balanced and judicious assessment of the issues involved in such a program seems to have deserted him here. For instance, I find rather offensive the very explicit contention that as a result of an emphasis on moral and spiritual values in the total school curriculum, the same basketball team which in the previous season had been relatively unsuccessful, found the key to winning basketball. Equally dubious are the claims that discipline improved, drop-outs decreased, marks were higher, and a greater number of honors were won in athletic and scholastic competitions as a result of the emphasis program. The author claims that the singing of Irving Berlin's "Give Me Your Tired, Your Poor" had such an impact on the pupils that, "Some of the leaders could sense faith in people, generosity, kindness, loyalty and sympathy, all principles and values inherent in democracy," (p. 67). This is almost ludicrous and mars an otherwise important book.

Critical readers may object that the goals of the program are those which all teachers attempt to achieve in the normal course of teaching and should not be regarded as the unique outcome of a program in moral and spiritual education.

These objections notwithstanding, *Moral Values in Public Education* is a significant book because it describes a thoughtful, rational, and courageous attempt to fulfill what is generally accepted as a major responsibility of the public schools. The author deserves credit for having generally resisted the temptation to deliver himself of contentless profundities despite the subject, and all the people associated with the Kentucky Movement deserve credit for having attempted to do something which most other people only talk about.

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The Pursuit of Excellence: Education and the Future of America. **Rockefeller Brothers Fund. 49 pages. 75¢ paperback.**

One of a series of several reports concerned with basic issues confronting our nation today is *The Pursuit of Excellence: Education and the Future of America.* It is Special Studies Report No. V of a group called the "America at Mid-Century Series," and it is copyrighted by the Rockefeller Brothers Fund, Inc., whose philanthropy and interest in national problems made the group of studies possible. A panel of distinguished Americans was assisted in this report by a "Panel on Education," a representative and competent group. Although the report is referred to as a "collaborative effort," primary responsibility was borne by the "Staff of the Special Studies Project."

Interestingly, it is just this "atmosphere of collaborative effort" which serves as a springboard for the description of the general problem to which the report is addressed. The contention is made that in our concern for coöperative effort, too little attention is paid to the individual. The danger is twofold: "that we may forget the individual" (p. IX), and that "in the temptation to overlook the individual" there is "the difficulty of giving free expression to creativity within an institutional atmosphere" (p. IX). The substance of the objective sought and the solution recommended are to be found in "A Word" by the Panel on Education. ". . . Society as a whole must come to the aid of the individual — finding ways to identify him as a unique person, and to place him alongside his fellow men in ways which will not inhibit nor destroy his individuality. By its educational system, its public and private institutional practices, and perhaps most importantly, by its attitude toward the creative person, a free society can actively insure its own constant invigoration" (p. IX).

The report is divided into five parts, specifically. A brief opening statement, "The Dignity of the Individual," is followed by "The Nature of the Challenge," in which the setting of the problem is given. Here are population characteristics, changing demands of society and the pressure on the supply of talent, the problem of change, the social ceiling on individual performance, and excellence in a democracy. Part III considers "The Educational System," both formal and informal, the teaching profession, the curriculum, science education, the identification of talent, and the uses of diversity and financing. The report next directs attention to "The Use and Misuse of Human Abilities," treated under several headings, including fuller use of underprivileged minorities, better use of the talents of women, rehabilitation of economically depressed areas and segments of the population, better use of older workers, and use of talent in large organizations. Finally, the role and the impact of "Motivation and Values" on the total educational process are considered.

The report content is ambitious in its scope, but since it is treated within a forty-nine page study, there is the inevitable shortcoming of over-generalization. Desired specificity is lacking. And soon the concern for excellence, primary in the title, falls into a minor place of emphasis.

Long in its shortcomings, the report must nevertheless be regarded as a major contribution to the current debate as to what, if anything, is wrong with American education and what can be done about it. It is essentially a constructive document and with its unbiassed sponsorship it is certain to command attention and respect. In calling for aggressive and daring measures to provide educational opportunities for the fullest development of every individual, and in suggesting how expensive education of this kind must be on community, state, and national levels ("a fact which the American people have never been quite prepared to face," p. 33), the report stakes out the dimensions of the problem. Frankly and forthrightly it points out, "all the problems of the schools lead us back sooner or later to our basic problem — finance" (p. 33).

The report does not straddle the issues it considers. It opposes the idea of separating students by ability; it rejects the European single test system of student selection; it deplores fixed ideas about class size; it advocates abolishing easy courses for able students.

"The widely held view that all we require are a few more teachers, a few more buildings, and a little more money" (p. 33) the report declares to be one of the most serious problems facing American education today, and it boldly affirms that if the people are not willing to recognize that the issue at stake is "nothing less than our national greatness" (p. 33) , the country's leaders must join in a national campaign to promote such an awareness. Recognizing the difficulty of the task confronting education today, and also the complication of spiraling enrollment which adds to teacher and building shortages, the report calls for new patterns of teacher and classroom utilization. It urges the use of educational television, films, and teacher aides to bring the best teachers in contact with large numbers of students. It calls for immediate changes in teacher preparation, teacher use, and teacher pay. Commenting on the present system of tenure and salary schedules, it suggests that mediocrity in the profession may be best challenged by discarding seniority in favor of merit for promotions and remuneration.

By all of this it may be seen that the report is not a tranquilizer but a stimulant. Clearly, it is a call to action and a warning against complacency in a time of crisis. Argumentative though it may prove and distasteful though it may be to those satisfied people who oppose trying anything new or different, the brief statement is full of ideas and suggestions worth consideration. The report deserves widespread and careful study. It merits the attention of all thoughtful Americans who are concerned for the preservation and perpetuation of attitudes and conditions by which "a free society can actively insure its own constant invigoration."

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***Philosophy and Education.* Edited, with comments, by Israel Scheffler. Boston, Allyn and Bacon, Inc. 1958. ix+311 pp. $5.75.**

As stated quite clearly by its editor, "the aim of this book is to present current philosophical methods in application to educational problems" (p.v) . The sense in which this aim pervades Mr. Scheffler's collection of readings is a distinctive one. The expression 'current philosophical methods' means something more definite, as used here, than if used, for example, to characterize a merely heterogeneous collection of essays. In the Scheffler collection there is something current, philosophical, and methodical that runs as a common thread through all the readings. As a whole, this method may be characterized as analytical, looking *through* an examination of language to problems of existential import. Since this is, without question, the method that distinguishes the current from the non-current in general philosophy, its application to problems of education should help to bring about that fusion of general philosophy and philosophy of education which is a desideratum of the editor (p. 2) .

Here then is a book with an aim which is clear and definite. Since this aim is eminently worthy, there is ample justification for Mr. Scheffler's book. But we still have to ask whether the book hits what it is aiming at. For reasons that I shall try to make clear, I don't think the book succeeds. But its failure, if I am right, cannot be said to lie in any one of the sixteen essays (some reprints, some original) nor in the editor's entirely just and well-written comments. I shall have to make a frontal assault against one of the articles included in order to show where the difficulty lies.

One of the essays published for the first time in this collection is "Social Inquiry and Moral Judgment," by Sydney Morgenbesser of Columbia University. Of all the readings included, Mr. Morgenbesser's piece is the best representative of current philosophical analysis. His writing is impeccable, and he is attacking a problem of immense significance. The essay begins with "the practice of comparing the social to the natural sciences, denigrating the former and extolling the latter" (p. 180). Mr. Morgenbesser then races through some of the usual statements as to why the social sciences are not, whether by happenstance or necessity, truly scientific. It is a pleasure to observe the originality and power he applies to some of the more pretentious prophecies and pronouncements concerning the plight of the social sciences. But when he concludes his treatment of "a family of interrelated problems," all revolving "in one way or another around the problem of the status of value judgments" (p. 187), he is guilty either of self-contradiction or of the assertion of a gross *non sequitur*.

Please follow carefully this part of Mr. Morgenbesser's argument. His analysis is pushed ahead where most break off — into the extraordinarily difficult problems involved in the justification of attitudes. He "assumes," when justification is at issue, "that sentences such as 'democracy is a better form of government than fascism' . . . are stated with all four of the following factors present: The speaker (1) communicates a continuant approval and (2) desires to persuade those addressed to re-consider their attitudes. He further (3) believes that his attitude is warranted and accords him the right to persuade others, and (4) commits himself to listen to the arguments of others, believing that they will not bring forward any consideration that will result in his shifting" (p. 194).

Now it is clear that requirement (4) is the most difficult one to achieve in most concrete instances in which the justification of moral attitudes is at issue. Mr. Morgenbesser mentions several conditions that would prevent this requirement from being met, and he concludes "for these and other reasons we cannot expect that attitudes will always be justified in the manner specified. The urgency of some issues, plus the difficulties of undertaking any justification procedure have the consequence . . . that the intent to justify is dropped" (p. 198). He adds, however, that "these considerations *do not,* in general, *obtain in scientific research*" (p. 198. My italics.). Now one would surely be led to think that the upshot of all this is a quite distinctive place for the scientist in the justification of attitudes. But Mr. Morgenbesser surprisingly begins his last paragraph with the statement: "If the above reflections are in order, then the social scientist *qua* social scientist has no unique role to play when questions of the justification of attitudes are raised." But the "above reflections" imply not only a unique role, but an extraordinarily important role for the scientist in the justification of attitudes.

Now Mr. Morgenbesser cannot appeal to any intrinsic difference between the social scientist and other scientist. He has already demolished those who would do so. Nor can he reply, the more likely move, that the scientist is concerned to justify beliefs, not attitudes. For he has admitted that *in the context of justification* there is a sense (a trivial sense, to be sure, but sufficiently a sense) in which the distinction between attitude and belief is pointless (p. 195).

But even if Mr. Morgenbesser had not given the case away in these points, there are two simpler considerations that would make the point I am after even more obvious. First, considering requirement (4), "the chances are that this higher order attitude about attitudes is not as widespread as that about beliefs" (p. 197). True. But its incidence is certainly much higher among social scientists than among the general population. The ability to listen to arguments is one that must be learned, and the field training of the anthropologist, the clinical training of the psychologist, even the statistical training of the economist may all be considered as training in the ability to attend to arguments *of the kind that would be relevant to the justification* of a sentence such as 'democracy is a better form of government than fascism.' So that if the justification of attitudes requires condition (4), the social scientist comes to have a special role. Second, it is important to remember that the concern here is with the *justification* of attitudes. Now ordinarily, except when we take on the higher order attitude of the social scientist, most of us are not concerned with justifying our attitudes but in satisfying them. We are not concerned to justify the attitude that is, in some sense, expressed by 'democracy is a better form of government than fascism.' We are concerned rather to win support for democracy, to arouse in ourselves and others a willingness to engage in certain forms of action, etc. As a citizen, I am not in the least concerned with *justifying* that attitude; it is only when I am trying to think as a political scientist that the question of justification arises for me. Again, then, it is precisely *qua* social scientist that I should have a "unique role to play when questions of the justification of attitudes are raised."

There was a suggestion by Mr. Morgenbesser that the word 'preference' might be preferable to 'attitude' as distinguished from beliefs. If he had followed that suggestion, it would have been apparent that the context of justification is a most unusual one in the life of the common man. Of course there is an enormous difference between saying 'I prefer apple to chocolate pie' and saying 'I prefer democracy to fascism.' But they share, it seems to me, one common feature. If pushed very hard, the ordinary citizen would soon cease trying to justify and simply say 'I prefer. . . .' And is anyone going to tell him that he ought not prefer what he does prefer unless he can justify that preference, or that attitude?

As citizens we do not try to justify our attitudes very often. But in the present stage of cultural transformation this may be an ever more frequent, albeit unpleasant, task for many of us. It is not merely "to our experience and that of our neighbor that we turn" when we are forced to justify our attitudes. The "logical conditions for a scientific justification of attitudes" (to express Mr. Morgenbesser's assumptions in a paraphrase of the title of a similar piece by Dewey) require an experience disciplined in a way that most of us cannot or will not discipline our experience. Mr. Morgenbesser's excellent article raises very strongly the whole matter of expertise, even the dreaded question of moral expertise. And when he denies that problem, he is either contradicting what he has said before, or he is using the expression "*qua* social scientist" in an idiosyncratic fashion and thus expressing an attitude which has no connection with the analysis that has gone before.

I suggest that this argument is of signal importance for principles in the teaching of the social sciences and of social scientists. Is it possible to teach the social sciences in such fashion that the ordinary citizen can think *qua* social scientist when the justification of his attitudes is at issue? A hasty affirmative answer is of no use here. Should the training of social scientists be seriously regarded as giving a special competence in the justification of attitudes? I am repelled by the thought, but that is merely my attitude. When I try to put that attitude to the strict conditions set by Mr. Morgenbesser, I very likely will find it unjustified. The best argument I can make for it at the moment is that in the past the justification of attitudes was not such a serious business. But this is not the past. And principles of teaching, unfortunately, are not for the past.

Now quite likely Mr. Morgenbesser or someone else can show that I am confused in one or all of the points in my attack upon his argument. I expressed it here to try to illustrate, as nothing in Mr. Scheffler's collection illustrates, that current philosophical methods, like those of traditional philosophy, are dialectical. They involve someone analyzing something and someone else trying to show that the analysis is not so final as its original author had supposed. Sometimes we can tell just where a particular line of argument began: many lines of discussion, for example, come from Ryle's *Concept of Mind,* selections from which are included by Mr. Scheffler. But there have been many important criticisms of Ryle's analysis. These are now part of the meaning of *Concept of Mind.* But the very meager bibliography provided by the editor does not even refer to them.

The absence of dialectic in this collection is not altogether the fault of its editor, though he might have been a bit more assiduous in preparing his bibliography. The blame lies also in the field of philosophy of education itself. Lacking the fusion that Mr. Scheffler seeks, we have confusion. This collection of readings is in this respect rather representative of the field as a whole. Some essays are interesting, others are boring; some are instructive, others less so. Paul Ziff's "Reasons in Art Criticism" is, as we would expect, a delight in its style, remarkably illuminating in its argument. But of all the interesting things that might be said concerning the appeal to tradition in policy discussions, in his "Tradition and the Traditionalist," Mr. Harold Weisberg, with great ingenuity, managed to miss the entire lot. Compared to the interest aroused in the discussion of Flew's "death by a thousand qualifications" attack against religious claims, Morton White's article, "Religion and the Higher Learning," is terribly flat. The statements by Henry D. Aiken and C. L. Stevenson, however, are remarkable for their clarity in presenting difficult philosophical distinctions to non-philosophers. The Stevenson contribution explains his nearly-copyrighted distinction between 'disagreement in attitude' and 'disagreement in belief,' but nowhere in the collection does one get a sense of continuity in the arguments around this and other currently important distinctions. The individual pieces, as would be expected, vary in quality, but there is no sense of community, no feeling that the writers are part of a social enterprise that has as its purpose the achievement of clarity and reason in discussions of educational problems. That sense, that feeling, that community *is* "current philosophical methods." If Scheffler's collection does not represent it, then the book has failed in its aim. Perhaps the failure is that of our field, where all too often we act as if the presentation of "different points of view" were a sufficient substitute for careful attention to arguments.

There is a possible consolation to be gained from all this. The anthology of readings plays a quite important role in current philosophical analysis. As arguments are carried on in the periodicals, the surface appearance is one of great melange. Those of us who haven't the time nor wit to evaluate all the current philosophical writing come more and more to depend upon the anthologizers to judge the quick from the dead. I suggest that Scheffler's collection for philosophy of education be regarded as the beginning point of discussions rather than a summation of discussions that have already been joined. Those who allow themselves the luxury of hope might well spend it foreseeing a Second Series, complete with Mr. Scheffler's comments on arguments that began with the first edition of *Philosophy and Education.*

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The Practice of School Administration — A Cooperative Professional Enterprise. **Hunt, Herold C. and Paul R. Pierce. Boston: Houghton Mifflin Company, 1958. 544 pp. $6.00.**

During the centennial of the National Education Association, celebrated in 1957, the executive secretary of that organization made the prediction that during the next twenty years there will be one vital change in American education. He said, "Its outstanding characteristics may be summarized in one word: *Quality,* — a subtle but very important new emphasis on quality. . . Basically, in our first century, the battle of quantity has been won, the principle of extensive and universal education firmly established. We have been mainly concerned that every child get into school. Now we must ask how much each child gets out of school."

In 1957, too, the thirty-fifth Yearbook of the American Association of School Administrators had as its theme "The Superintendent As Instructional Leader." There can be little doubt that the foremost function of school administration is to provide the personnel, the facilities. the processes, and the general conditions that will make possible effective teaching and learning. This all means that the teacher and the teacher-pupil relationships are of paramount importance, and that improving curricula and instruction is the major job of school leadership. School administrators who have been most concerned in recent years with securing the necessary money, buildings, and personnel to carry out an educational program, are now increasingly concerning themselves with what should be done if all of those physical necessities were available.

Herold Hunt and Paul Pierce have produced a book on school administration which focuses on this main job. It briefly but adequately shows the magnitude of the task in view of present-day social trends, the nature of the administrative process, and the need for statesmanship in educational administration. But sight of the major task must not be lost in the myriad distractions, pressures, and involvements which continually clamor for the school administrator's attention. He must coöperatively develop with all staff members and many lay citizens a plan wherein each can see the total program. By seeing his appropriate place in that program, he must be able to plan the operation and evaluate the outcome of his own work and of the school.

High priority is given to the job of achieving pupil development by guiding staff study, by using child developmental data, and by proper induction of the child in school living and learning. The heart of the book deals with specific aspects of instructional leadership: the basic skills; shaping the administration to serve the educational program; the individual school as the basic educational unit; the instructional center servicing the educational program; and establishing the principal as the educational leader.

As any comprehensive book on school administration must do, *The Practice of School Administration* treats well such topics as administering the school plant, managing educational finances, and home and community relationships. But such topics in this book are seen as ways of improving educational leadership. For example, it is pointed out that the problem of adequate money for the public schools is as directly an educational problem as it is an economic one, for parents will want to assist in financing an enterprise in which they are led to be active, understanding, and influential partners.

The organization of this book is in itself one of its outstanding features. While maintaining the theme of leadership for a high quality educational program, each chapter represents a complete unit in one area of administration, prefaced with a one-page statement of historical perspective, and followed by an over-view of principles and good practices related to the particular aspect of school administration. Best illustrative practices, as called for by the needs of the educational program and by the application of basic principles, are given in some detail. Excellent documentation is provided both for the standard works in each aspect of administration, as well as for the illustrative practices gleaned from other numerous sources.

Concluding with a statement on adequate incentives for outstanding professional service, the authors say, "To the not inconsequential incentives in the form of material advantages which have been cited and the satisfactions that are derived from democratic leadership in a basic profession should be added the tangible awards that bring honor to the individual administrator and increased prestige to his emerging profession. The American Education Award bestowed by the Associated Exhibitors of the National Education Association provides an illustration. This might be adapted to various spheres of school administration, with appropriate recognition for the winning of such honors. The award of honors in science, surgery, and literature, shows how outstanding the achievement in education might be interpreted to the public and made the subject of national recognition and honor. The professional and citizens' organizations which throughout the years have done much to raise the sights of school administration, should strive to have school administration included in Nobel prize awards and honors of like calibre. Chiefly, however, the main incentive to enter school administration will be, as it has been in the past, the opportunity to exercise a wide sphere of influence and service, developing children and youth into successful citizens through democratic leadership, in the largest and in many ways the most significant of our American professions" (pp. 521-522).

This is not a book for the naive. It is not a collection of recipes. It is rather for the scholar-practitioner who appreciates the social environment in which the educational process functions, and who wishes to develop the best possible ways for the public schools to contribute to that process. Viewed in this light, the statement of one of the authors to his staff a few years ago assumes added meaning and inspiration for the entire profession of education: "Never were the ends to be served more important. Never were the rewards to be gained more truly satisfying."

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Financing the Public Schools (Volune 1); School Needs in the Decade Ahead. **Roger A. Freeman. The Institute for Social Science Research, Washington, D.C., 1958. 273 pp. $5.00**

What the public schools will need over the next decade in terms of money is the question which Mr. Freeman attempts to answer. He begins with enrollment projections and ends with estimates of revenue requirements after reviewing teacher supply and demand, teachers' salaries, current expenditures, capital outlays, and school building costs. The answer is given as a national estimate which may not necessarily reflect the sum total of what it would cost to provide schools at a specified minimum level of excellence in all states and local school systems.

This volume is a very cleverly conceived work of counter-propaganda. Organizations and agencies promoting public education tend to marshal statistics favorable to what they are promoting. This book marshals the statistics which throw doubt upon the claims of educators. However, the battle of statistics will not end with the publication of this volume. The selection of base years, statistical series, and statistical findings in order to contribute to skepticism will, no doubt, be followed by rebuttals from educational organizations. There are ample opportunities for this throughout the volume.

The debate over national statistics which provides the substance of this work can be traced to inadequacies in the statistics and to the lack of their proper interpretation. Those of us who work with national statistics on public school expenditures know well that they are far from perfect. Yet they probably do provide a rough approximation of what has occurred, if properly interpreted. Propagandists for and against public school spending are impatient with careful interpretations. In this respect, at least, the author is no more careless than many of those whom he criticizes.

National statistics about the quality of public education or the qualifications of teachers do not exist. National totals of the need for teachers or the need for school facilities are nothing more than very rough estimates. The data simply are not available for exact statistics. Attacks of the type contained in *School Needs in the Decade Ahead* add very little to our insight, but may stimulate us to be more careful in our interpretation and use of such imperfect national statistics as we have.

The author's estimates of school population, both nationally and by states, should prove useful and should be used in cross-checking other estimates. I found the estimates as related to level of income by states very challenging indeed.

The attempt to translate population into school needs is too cluttered with opinion and with over-extended, unqualified generalizations to add wisdom to public policy decisions. The author does not hesitate to conclude unequivocally upon matters which research would not attempt to answer, or where research, when carefully executed and interpreted, has still yielded only inconclusive, highly qualified answers. In dealing with the statistics, the author frequently uses the verbs "proves" and "disproves." Most of the statements he makes are far too general and loosely worded to lend themselves to proof or disproof. Among the complex issues upon which such statements are made are these: the comparative quality of American public schools, the trend in public school quality, class size, the over-all efficiency of schools, the prevalence of certain courses, the lowering of standards, the educational usefulness of television, the lack of emphasis on subject matter, qualifications of teachers, the proper way to compensate teachers, and many others.

An example of the many broad generalizations in the book which could not be proved or disproved with available data is this one: "But children learn less in terms of academic achievement, in American schools in twelve years than they do in Russian or other foreign schools in ten" (p. xxii). This assumes knowledge which does not exist. It also ignores known facts. It assumes knowledge of the academic achievement of *all* American schools. Such data never have been available, not even for a representative sampling. If this is so in our country, comparable data certainly could not be available for all Russian schools and all foreign schools including those in such countries as Iran, Bulgaria, Ethiopia, Uruguay, and Thailand. Furthermore, it is known that what data is available for such schools is for approximately the upper twenty percent of the pupils of high school age. The comparison therefore would have to be with that percent of the American high school population, not with all American schools.

The negative perspective of the author detracts from his contribution to understanding. He analyzes a set of data far enough to question a claim of educators, but not quite far enough to see what might be true. For example, in the section on Teacher Supply in Chapter III, he attempts to discount the claim of a shortage of qualified personnel solely in terms of data on the professional education of teachers. Yet, in the section on Merit Pay in Chapter IV, he admits that there is more to the quality of teachers than the number of credit hours, and he concludes (p. 160) that the number of outstanding practitioners is small. Where between these two extremes will the truth be found?

The volume is also replete with historical contradictions. For example, in one place the author attempts to show that educational conditions have improved. In others, he talks about qualitative deterioration. In both such instances he generalizes about public education as a whole, even though sufficient data are not available either to support or to deny any such broad generalizations. We know that standards appropriate for the past are not high enough for the complex world of today, much less that of tomorrow. What we need to know is which schools do not measure up to modern standards and why. Then we should proceed to bring these lagging schools up to these standards.

Larger needs are not considered in this perspective in *School Needs in the Decade Ahead.* The educational needs of our expanding economy, our evolving position of world leadership, and our growing civic and social problems are not discussed. Proposals are made which, if carried into effect, could seriously impair our ability to maintain our high living standard. The whole emphasis is upon a preconceived idea as to how much money the nation should spend upon public schools.

The needs of American public education in the decade ahead will be relative to the standards maintained and the efforts made to upgrade the lowest toward excellence. The cost will be determined by operating efficiency, by conditions in the labor market, and by the price of materials as reflected in the budgets of the operating units. These needs and resulting costs are subject to careful estimation, but not to exact statistical measurement. And estimates, when projected over a decade or more, are inevitably subject to wide margins of error.

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Talent and Society: New Perspectives in the Identification of Talent. **David C. McClelland, Alfred L. Baldwin, Urie Bronfenbrenner, and Fred L. Strodtbeck. D. Van Nostrand Company, Inc. Princeton, 1958. 275 pp., $3.75.**

The viewpoint from which the contributors to this volume proceeded was that the "practical" devices for finding and measuring ability "had been developed to the point of diminishing returns" (p. iii), and that what was needed now was a fundamental rethinking of the whole area. Thus, they are not attempting to devise any new form of intelligence or aptitude test. Indeed, they are not interested in the conventional types of ability at all, nor do they engage in the conventional kind of thinking as to what "makes" ability. Rather, they are concerned primarily with non-academic — or better, perhaps, "extra-academic" — skills, and with the relationships between ability, on the one hand, and personality attributes and social situations, on the other. These common concerns are exhibited in the three research reports and the three more purely theoretical discussions which constitute the book.

A number of themes pervade the several contributions, apparently as the result of convergence rather than of collusion. One of these is the extraordinary complexity of the problems here dealt with, greater even than these sophisticated investigators had anticipated. This is manifested most forcefully in the statistical intricacies which characterize the research reports; only the most patient and statistically most erudite readers will be able to follow all the details of the arguments. But this is no mere display of statistical virtuosity for its own sake; the intricacies are inherent in the problems.

The old distinction between "talent potential" and "talented performance" is abandoned, since potential can never be observed except in some kind of performance; in its place appear a host of new distinctions. Professor Baldwin, for example, considering ability as a species of adaptive behavior, differentiates between guided and unguided behavior, the former being governed by steady feedback from the environment or from the individual's own cognitive representations, while the latter is more nearly "reflexive" and rigid, expressing immediate needs rather than being instrumental to the attainment of future goals. It is guided behavior which we usually think of as "ability," but certain kinds of social skills are in the other category. To be able to earn a reputation for being sympathetic and friendly is often a very useful kind of talent, but it must be the outgrowth of unguided, spontaneous behavior; insofar as action is perceived as being calculated to attain that kind of reputation, it will be self-defeating and hence unskillful.

Professor Bronfenbrenner takes up another kind of social skill, "empathic ability," and demonstrates that even it has a multiplicity of forms. Empathic ability is the capacity of a person to make accurate predictions of other people's responses. It is an important skill not only because of the contribution it can make to social effectiveness in general and in such particular occupational fields as politics, psychotherapy, and administration (and, incidentally, talent-searching as well!), but also because it is the ultimate basis of the capacity for taking on new ways of behaving — i.e., for learning. In previous literature, it had been regarded as a more or less unitary ability, but Professor Bronfenbrenner disputes this hypothesis. He suggests instead the hypothetical independence of some 24 kinds of sensitivity to other people, each one with both a static and a dynamic quality. He does not, of course, provide us with evidence of the actual independence of all these types, but he does furnish enough to upset the unitary hypothesis. As a matter of fact, in his investigation he encountered even more differentiation than he was looking for, since it turned out that the major variable affecting sensitivity is sex. Nothing so simple, mind you, as that women are more sensitive than men. Rather, one's empathic ability was the joint product of, among other things, one's own sex-role identification, the sex of those whom one was judging, and the sensitivity and traits of the other members of the group in which the judging took place, as well as the kind of sensitivity being measured; and the traits associated with high sensitivity are not the same for all kinds of sensitivity, or for both sexes, or for either sex in all judging situations.

The position that potential cannot be separated from performance implies a corollary that is another recurring theme in the book: both the motivation for performance and the situation in which the performance occurs are instrinsic aspects of ability. This was, as has been indicated, one of the conclusions of the study of empathic ability. Professor Strodtbeck arrives at a similar finding in his analysis of Italian and Jewish subcultures in New Haven. The more talented performance of the Jewish group, measured here by its higher average occupational status, could be partly accounted for by its stress on the individual's mastery of his own destiny and on the expectation that he become independent of his parents, contrasted with the greater emphasis of the Italian group on fate and family ties. The Jewish values bring about the kinds of behavior which lead to success in America; presumably, the Italian values would be more likely to lead to success in a society which rewarded familism more. Also relevant was the finding that families in which the father held relatively great power were less likely to contain sons with strongly achievement-oriented values than were families in which relatively more power was in the hands of the mother. We must, then, think in terms not only of talented persons, but also of "talented situations."

If this study obliges us to reformulate our ideas about what talent is and where it comes from, it equally well compels us to do some fresh thinking about social and educational policy. Professor McClelland raises some baffling questions about its application. What action, for example, should follow from our knowledge that Jewish values are more likely to lead to talented performance than are Italian? We can hardly propose that schools discriminate in favor of Jews, though that would increase the efficiency with which the schools could select those most likely to succeed. There are alternative ways of applying this knowledge, e.g., changing the Italian culture so that it will more nearly resemble the Jewish culture, or changing American culture so that it will give greater success-rewards to familism. But these changes are neither feasible nor necessarily desirable. Considering the role which family patterns play in the development of ability leads to a similar blank wall: ought we to try to increase the familial power of mothers, relative to that of fathers, in order to increase the frequency of talented sons, and if so, how? Professor McClelland is bold enough to suggest that we should. He proposes improved counselling services "for parents and children," with the aim of altering family situations; where this failed, we might then send children "to special summer camps or boarding schools, where they would live in an atmosphere more favorable to developing their achievement potential" (p. 253). Perhaps, even, extensive psychotherapy might be needed. Many readers, however, including this one, would be hesitant to resort to this kind of social engineering.

Finally, the whole concept of "special training" for the talented is called into question. Aside from a number of logical contradictions — how, for instance, can we "train" people to engage in the spontaneous behavior productive of the kind of social skills Professor Baldwin discusses? — and aside from the difficulty of determining the content of such training, the very idea of education is in opposition to one concept of "talented people." If talent were the fixed attribute of a few individuals, who "have" it once and for all, no educational system would be necessary. But this is not the case: talent must be developed, as this book clearly brings out. And it goes further. It advances the propositions that there are many different kinds of ability, independent of one another and consequently relatively widespread among the population; and that each is the result of a combination of particular psychological attributes and social situations. The educational function (and it extends far beyond the schools) is not to look for and devote attention to talented people, then, but to create a variety of situations sufficient to nurture all socially useful skills. Professor McClelland sums it up well: our "general strategy must shift from identifying 'talented persons' to *matching persons with certain characteristics to situations in which those characteristics will be most adaptive*" (p. 236).

ROBERT A. FELDMESSER
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Pioneers of Popular Education, 1760-1850. Hugh M. Pollard. Harvard University Press, 1957. $5.50.

When in the eighteen sixties R. H. Quick published rather apologetically his *Essays on Educational Reformers,* little did he realize that he was inaugurating a most productive era in educational historiography in the English-speaking world. His pioneering work, was, to name but a sample, followed by J. W. Adamson's *Pioneers of Modern Education,* R. R. Rusk's *The Doctirnes of the Great Educators,* R. Ulich's *History of Educational Thought,* and A. V. Judges' *Pioneers of English Education.* Quick's remarks that all study of this kind "is very much impeded by want of books," and that "on the history of education, not only good books, but all books are in German, or some other foreign language,"[1] would certainly not be true today, and Hugh Pollard's *Pioneers of Popular Education, 1760-1850* attests not only to the continuation but also to the vitality of this type of historical writing.

Pollard's main concern is the development of popular education in England in the first half of the nineteenth century, but, in order to make this development more meaningful, he treats it in the light of the European sources from which the English reformers drew their educational inspiration. The book is divided into two parts. Part one is devoted to continental thinkers and movements, and part two to an examination of the English educational scene.

Unlike most historians of the European pedagogical renaissance manifested after the French Revolution, Pollard examines the ideas and work of many lesser-known figures, and he successfully shows that at the time the English educational reformers drew as much if not more from them as they did from the better-known figures. Hence, he writes very little about Rousseau and Pestalozzi and a great deal about Basedow, Salzmann, de Fellenberg, Wehrli, and Father Girard. He traces the European influence on English education to three distinct schools of thought whose representatives had one unifying purpose, viz., that the education of the poor was necessary for the healthy development of European society. These schools were: (a) that represented by the Catholic Brothers of the Christian Schools, a society of religious teachers founded in 1682 by St. Jean-Baptiste De la Salle, (b) the Nature School of teachers and administrators whose afflatus was none other than Rousseau, and (c) the Monitorial School as developed by Guillaume Wilhelm in France and Father Girard in Switzerland. The Nature School was by far the most important. Rousseau's discovery of Nature as a new force in education had a great impact on German and Swiss educational thought and practice, and the ideas and experiments of Basedow, Salzmann, von Rochow, and Richter, and, more triumphantly of Pestalozzi, de Fellenberg, and Wehrli, not only pointed towards new principles of learning and teaching, but also prepared the ground for the later establishment of a universal system of primary education in Prussia, Holland, and England.

The examination of European ideas and practices, however, affords a background to the second and, in the opinion of this reviewer, the more important and original part of the book. In a clear and simple manner Pollard investigates the educational awakening in his native land in the decades following Waterloo, he supports the thesis that this was achieved through the untiring efforts of dedicated individuals who were heavily indebted to their continental counterparts. These English educational pioneers included men from various walks of life such as Robert Owen, the father of English socialism, Lord Brougham, the politician who fought for the establishment of a state system of education, Synge, James Greaves and the Mayos (Charles and Elizabeth) who strove to introduce the pedagogical ideas of the Nature School, Lady Noel Byron, the poet's wife, and most important of all, James Phillips-Kay (later Sir James Kay-Shuttleworth) who gave up his medical career, traveled extensively in Europe, and then sought with tenacity to weave the foreign pedagogical ideas into the fabric of English primary education.

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[1] See: R. R. Quick, *Essays on Educational Reformers.* Cincinnati: Robert Clarke & Co., 1874, preface, p. iv.

From the standpoint of the beginnings of English primary education, *Pioneers of Popular Education* is the most comprehensive work in print and Pollard's contribution is inestimable. Furthermore, in showing that at the time it was the lesser-known figures that were influential, he puts historical events in their proper perspective.

There are two important questions that arise from reading this book, or any book of this kind. The first relates to Pollard's method of writing educational history, and the second to the significance of such a study for the present-day person concerned with the various problems of education. As suggested by its title, the book deals primarily with personalities, and only secondarily with the social and political movements of the period. To many educational historians, especially in the United States, the examination of educational developments through personalities might appear one-sided and not truly "scientific". This, however, is merely a point of view and the question of what "scientific" in history means is still not settled. Pollard follows a method which seems to have many adherents in England and also writes history which is readable and interesting.

The second question is more controversial than the first, for it is part of that very complex problem of the value of history in general. A full discussion of this problem is beyond the scope here, but a few comments might help to clarify Pollard's purpose. If by reading this book the current educator looked for concrete suggestions to solve his problems, he would be greatly disappointed. In fact he would be asking Pollard to do something he never intended to in the first place. If, on the other hand, the reader approached educational history in its proper light, the experience might be more rewarding. What exactly is this "proper light"? Pollard himself answers this in part when he says, rather modestly, that "it might be of interest" to observe how in the decades following Waterloo an educational consciousness was created in England and who the protagonists were. This endeavor, he assumes, has value in itself without an effort to relate it to the current situation, and at the same time affords a good background to the understanding of the great education act of 1870.

But an examination of the thought and deeds of educational reformers, removed though they may be from the current scene, has a further value which was best expressed by Quick in these words:

> I venture to think . . . that practical men in education as in most other things, may derive benefit from the knowledge of what has already been said and done by the leading men engaged in it, both past and present.[2]

For the English educator, Pollard's analysis of the work of the nineteenth century pioneers, as well as of the difficulties they had to overcome, might furnish a better perspective in his attempts to improve current educational practice. For the student of American educational history it would be of interest to compare the work of Kay-Shuttleworth and his contemporary Horace Mann, and to explore the question as to why the latter was more successful than the former. Such an inquiry might lead further into an examination of the relation of education and the theory of the state prevalent at the time, an investigation which would be of value not only to the student who is interested in historical phenomena for their own sake, but also to the "practical man in education" who strives for a better understanding of the existing situation, and seeks inspiration for its improvement.

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[2] *Ibid.*, p. iv.

In the long run, then, books like *Pioneers of Popular Education* might be more "practical" or "useful" than the amazingly large and uninviting number of studies which set up more grandiose aims and which allegedly have found solutions to the merely contemporary educational problems.

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A Symposium:

"Can the Laws of Learning be Applied in the Classroom?"

Kenneth W. Spence

Arthur W. Melton

Benton J. Underwood

The 'Impossibility' of Neutrality

Robert H. Ennis

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Information for Contributors

The *Harvard Educational Review* is a professional quarterly for the publication of articles dealing with problems of education. These problems are not merely the problems of schools; they are also the problems of society which brings schools, and other socializing institutions, into existence. The *Review* therefore welcomes contributions, not only by scholars and research workers in education, but by persons in related professions as well. Favorable consideration will likewise be given to articles dealing with problems of education as seen from the vantage point of the several social sciences.

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THE EDITORS

A Symposium: "Can the Laws of Learning be Applied in the Classroom?"

Again, as in the Fall, 1958 issue, the HARVARD EDUCATIONAL REVIEW is privileged to print papers presented at a symposium held under the auspices of Northwestern University's School of Education — Department of Psychology Carnegie Project.

The participants of this symposium (held in May, 1958) are all experimental psychologists. Their concern, expressed in the symposium title, is with the relation between a "science" of psychology and a "technology" of education.

Professor Kenneth W. Spence was trained at Yale when Clark Hull was there formulating his theories of behavior and learning. Since then his main concern has been with the extension and refinement of Hull's system. In his paper he assesses the present state of "learning theory." He emphasizes the need for precise laboratory analysis of simple behavior in order to establish a body of empirical laws and a comprehensive theory of behavior. Although his enthusiasm for "teaching machines" indicates that he feels the time is ripe for cooperation between experimental psychologists and educators, he insists on the importance of basic research.

Professor Arthur W. Melton was a colleague of Spence at Yale. Although his basic orientation is toward pure science, (he is editor of the *Journal of Experimental Psychology*) he has had abundant experience in military psychology and other applied fields. He argues that a mutually supporting relationship between the *science of learning* and the *technology of educational method* is necessary. He notes that such a relationship is lacking in public education while it thrives in industrial and military training. Among obstacles to improving and maintaining this relationship he mentions: the failure to achieve a unified science of learning; the lack of an adequate "taxonomy" of educational tasks; and the presence of a number of confusions which lead to the belief that there is an antithesis between pure and applied psychology. Finally he indicates a 'grand strategy' for the acceleration of both the science of learning and the technology of education.' "

Professor Benton J. Underwood was a student of both Spence and Melton. His specialty is human learning and retention. In his paper he first offers a specific list of psychological variables which he considers applicable to the classroom and a list of common experimental variables which he considers of "small practical importance." He then gives a concrete illustration of how it is "possible to analyze the implication of a laboratory variable and to show how it might be relevant to the school situation."

Psychological experimentation was once closer to education than it is now. The juxtaposition here of papers by three eminent experimental psychologists may be a modest contribution to the revival of an old partnership.

THE EDITORS

The Relation of Learning Theory to the Technology of Education

KENNETH W. SPENCE

State University of Iowa

There was a time, I suppose, when educators and educational psychologists would have looked forward to a paper by a theoretical psychologist, particularly one reputed to be interested in learning phenomena, with some considerable interest. With few exceptions, however, I feel sure that the writings and speeches of theoretical learning psychologists in recent years have been quite disappointing and not a little puzzling to such an audience. The dissatisfactions and complaints of those interested in education with the contributions of contemporary learning theorists need not be detailed here.

Nevertheless, I cannot resist the temptation to remind you of the flavor of the reaction by relating at some length the response of one psychologist whose position in one of the New York State teachers' colleges presumably had involved him in the task of attempting to interpret these learning theories to prospective teachers. The occasion was a symposium that took place a few years ago at the University of Kentucky on the topic, *Learning Theory, Personality Theory, and Clinical Research* (5). As the opening speaker it was my task to review the current status of learning theories and to indicate some of the recent developments in my own views. Accordingly, in the first portion of my talk I took particular pains to point out that the phenomena that the experimental psychologist interested in the problem of learning has taken as the object of his studies, and about which he has attempted to formulate his theories, have little or nothing to do with learning in real life situations, including even the kinds of learning that are supposed to go on in the schoolroom. I then pointed out that the body of laws and theories that these psychologists had developed had their origins in a very different set of phenomena, namely observations made under rather artificial laboratory conditions of such simple things as the lever pressing behavior or running speed of the white rat, the salivary or leg flexion response of the dog and the blinking response of the human eyelid. I went on to explain why they had elected this course instead of concentrating their efforts on the more complex kinds of learning that occur in real life.

Speaking on the following day, Dr. Donald Snygg, participant representing the viewpoint of the educational psychologist, prefaced his paper with the following remarks: "I am particularly grateful to Dr. Spence for his disarmingly frank and modest statement that his learning theory at the present time has no application to any but the most simple behavior. I suppose I should be happy about this situation because it removes much of what I have to say from the realm of controversy and consequently from the risk of emotion and hard feelings, but as a psychologist I find it somewhat depressing. From any practical point of view the basic problem of psychology is the problem of learning. Most psychologists are paid to help people to learn. Whether we are academic psychologists, educational psychologists, clinical psychologists, or industrial psychologists, we are supposed to be experts in learning. This is embarrassing because the truth is that nobody knows very much about learning" (4, p. 129).

Warming up to his theme, the speaker went on as follows: "The inadequacy of our current learning theories for practical purposes is clearly revealed by their failure to have any effect on educational practices and objectives. Only a few years ago the psychology of learning constituted the core of educational psychology. Now learning has been pushed far into the background by mental hygiene and personality. This seems strange when we remember that learning first became an object of psychological research because of the practical needs of teachers" (4, p. 129).

Now I suspect that many, particularly the educational psychologists, would heartily agree with the sentiments expressed by this psychologist and I would also readily assent to their implication that the contemporary learning theories of the experimental psychologist have had very little, if any, importance as far as educational practices and objectives are concerned. Certainly those of us engaged in this endeavor have been under no illusions as to the applicability at the present time of our theoretical formulations to the practical problems of education. The fact of the matter is that we so-called learning theorists, particularly those of us whose research has been conducted mostly with animal subjects, have not been interested in the practical aspects of learning for many years. Indeed, it could be fairly said that the understanding of learning phenomena, i.e., behavioral changes that occur with repeated experience in the same or essentially similar situation, is only one of the objectives of our investigations. Measured in terms of all the variables manipulated in these experiments the learning variables do not even constitute a majority of those investigated.

Perhaps the most dramatic way to bring out this point is to cite the titles of some of the major books that have come out of the work of experimental psychologists during the last 30 years. The first to appear was Tolman's *Purposive behavior in animals and men,* published in 1932. In 1938 Skinner published the results of his early studies on operant conditioning in a book entitled, *The behavior of organisms.* After a series of theoretical articles concerned with behavior in classical conditioning, trial and error learning, and maze learning that appeared in the *Psychological Review* during the 1930's, Hull published three books, *Principles of behavior* in 1943, *Essentials of behavior* in 1949, and finally, in 1952, his posthumous book, *A behavior system.* Only in Guthrie's book, *Psychology of learning,* did the word "learning" appear in the title and it is rather significant that this is the only one of the books mentioned that did not present in detail the results of specific experimental studies and attempt to offer a systematic interpretation of them. These psychologists were interested in studying the behavior of organisms in relation to all possible variables that affected it. Being interested in the phenomena of learning, they did employ experimental arrangements that permitted the opportunity to observe the changes in behavior that occur with repeated practice. But they were primarily interested in formulating quantitative laws relating the observed behavior to all of its determining conditions. Some psychologists in particular Tolman, Hull, and I, were also interested in the problem of whether, and to what extent, a comprehensive theory could be developed that would permit the derivation (and hence, explanation) of the specific different laws found in the various situations. Skinner, of course, has been satisfied to limit himself to the formulation of the empirical laws, apparently believing that such theorizing is as yet premature.

This, then, is what we experimental psychologists have been up to. Our studies involving learning situations have not been conducted with a view to finding principles that will be immediately applicable to the practical problems of training or teaching in the classroom. Just as Sherrington investigated the phenomena of spinal reflexes and Pavlov the phenomena of conditioned reflexes with a view to discovering laws and formulating theories about them, so, likewise, have such psychologists as Tolman, Hull, and Skinner investigated behavior in such simple learning situations as represented by the conditioned eyelid situation, the lever box, the straight runway, and the simple T-maze, with a view to formulating laws and theories about these behaviors. The only difference is that, whereas Sherrington and Pavlov put forward neurophysiological theories to explain their behavioral laws, Hull and Tolman have, for the most part, favored psychological or behavioral theories.

Unfortunately, many psychologists, and I do not limit the group to educational psychologists, have not understood the purpose and objectives of these investigations. Apparently the fact that Thorndike, who played such an important role in originating animal experimentation with learning situations, subsequently went into the field of educational psychology, has led many psychologists to jump to the conclusion that all studies of animal learning must have been undertaken with a view to finding principles of use to educational psychology and other areas of practical application. Bypassing the point that Thorndike's original work had no such purpose and that his subsequent use of the laws of exercise and effect in the educational field was a by-product of his original researches, these psychologists have tended to evaluate the research of experimental psychologists on learning *exclusively* in terms of its possible contribution to practical or applied problems. Needless to say, at the present time such judgments are likely to be pretty negative. From the viewpoint of the experimental psychologist, however, they are completely irrelevant.

The problem here is the old one of pure versus applied research. Will the attempts of experimental psychologists to discover lawful relations in pure situations, such as are obtainable only in the laboratory, pay off in the long run by providing us eventually with a better and more comprehensive understanding of learning in complex life situations? Unfortunately, even with the recent example before us of the spectacular role played by theory and pure research in the practical developments within the field of nuclear physics, I suspect that there are many in psychology and education who not only remain pessimistic about the worth, but also will continue to deprecate the value, of such pure research endeavors in the area of learned behavior.

As I have pointed out in my Silliman Lectures (6) the great majority of contemporary psychologists, prodded as they are by the demands of society to solve pressing technological problems, have tended to evaluate the significance of psychological concepts and research in terms of the degree to which they appear to be applicable to immediate practical problems, rather than in terms of the scientific criterion of whether the ideas and activities lead to the discovery of general laws and the formulation of systematic theories of a comprehensive nature. As a consequence, applied research in psychology has been emphasized at the expense of basic research, and this in spite of the fact that experience in other sciences has clearly shown that the range and adequacy of any engineering program rests upon the degree of development of a basic system of general laws applicable to a wide variety of situations.

The truth of the matter is that we psychologists have been asked to solve practical problems before we had the laws of behavior necessary to do so. Lacking these basic laws, the applied psychologist has found it necessary to proceed in much the same fashion as the basic research psychologist instead of operating in the manner of the typical engineer. Indeed, about the only difference is that the pure psychologist can simplify and control the behavior situation in any way he believes will help him discover precise quantitative laws, whereas the applied psychologist is more limited in this respect and must confine himself to the actual kinds of behavior involved in the specific job that he is studying. Employing his research methods, as, for example, the techniques of job or activity analysis, methods of measuring individual behavior properties, and statistical-experimental designs, the applied psychologist has usually been able to discover the relevant variables and formulate at least rough laws governing the particular behaviors in which he is interested. Furthermore, on the basis of such research studies, the applied psychologist has been in a position to make valuable recommendations with regard to providing the most effective selection procedures and training programs. During and since World War II psychologists have been highly successful in such research activities, especially in the various military services.

As impressed as I am with the possibilities of this type of research, I believe, nevertheless, that it has certain definite limitations. A major one is that the findings of such research programs are usually highly specific to the particular situation being investigated with the result that a new research study must be made for each new situation. The reasons for this are not difficult to understand. Typically the behaviors involved are highly complex. Not only are many different kinds of responses involved, — for example, simple perceptual and motor skills, verbal responses and such complex symbolic activities as thinking or reasoning, — but also the different situations involve these different kinds of behavior in many varying combinations, particularly of a temporal order. Likewise the variables in the environment that determine the behavior — for example, the teacher, the classroom climate, the home atmosphere, to mention only a few — also differ greatly and operate in many different combinations. The consequence is that the lower order laws obtained in this type of investigation are likely to be highly conflicting and the researcher cannot have much confidence that the findings in one situation will be transferrable to another even though it may be fairly similar.

Still another limitation in such research is that the investigator is greatly restricted in the extent to which he is permitted or is even able (when permission is granted) to manipulate the variables that are operating. Even with the most cooperative school or military administration the training or teaching job has to be accomplished with a minimum of interference, and research is often quite disruptive. Even when cooperation is at its best, the psychologist encounters obstacles in such research enterprises. All too frequently our social mores will not permit much leeway in investigating what may turn out to be extremely important factors. In this last connection one thinks of the great need that exists at the present time for research on such potent motivating factors in learning as anxiety and mild forms of punishment. We know very little about the laws relating such variables to performance in the classroom, although a good many dogmatic statements can be found in the literature to the effect that such things are not good. Actually we have little or no real understanding as to whether and how such variables might be effectively used in improving learning.

But the most important factor limiting the outcomes of applied research, particularly from the point of view of the scientist interested in arriving at laws which have some degree of generality, is the great complexity and heterogeneity of the behavioral situations represented in the school. The best that such research can hope to achieve, in my opinion, is a catalogue of many specific low order laws that will remain quite unrelated unless we proceed as other scientists do — namely, to analyze or to fractionate these complex events into simpler aspects and then investigate these aspects with a view to discovering more abstract (theoretical) concepts that will provide for the possibility of integrating the specific low order laws.

The history of the development of laboratory research on learning presents an interesting lesson in this regard. If one surveys the experimental literature on learning beginning with the studies of Ebbinghaus on human rote learning and Thorndike on animal learning, it will be found that up until very recently (ca. 1952) there was a marked trend toward the use of relatively simple as compared with complex types of behavior situations.

As an example of this shift to simpler forms of behavior situations it is interesting to examine the relative frequency with which different types of laboratory setups have been used by experimental psychologists in their studies of learning during the years since Thorndike introduced his trial and error problem boxes. In the period 1900 to 1930 not only did this type of selective learning situation continue to be used, but the even more complicated multiple choice maze involving a long series of choices came into prominence. Other equally complicated laboratory arrangements favored during this period were the double alternation problem and the delayed response situation invented by Hunter, the so-called reasoning situations employed by Maier, and the multiple choice problem requiring the animal to learn on the basis of such concepts as "middleness" introduced by Yerkes. While a few investigations in which these complex behavior problems have been used may be found in the decade following 1930, since 1940 they have been relatively rare. In their place are to be found experimental arrangements involving much simpler behavior such as the Pavlovian classical conditioning experiment as exemplified by the conditioning of the salivary response in dogs or the eyelid in man, and the so-called instrumental type of conditioning as represented by the lever pressing box of Skinner.

Along with conditioning techniques the psychologist of learning has made considerable use in recent years of two highly simplified selective or trial and error learning problems. One is the simple T-maze which involves two alternative spatial responses — turning left or right at a single choice point. The second is the visual discrimination apparatus which also provides for but two alternative responses, in this instance to two non-spatial cues, such as a white alley or a black one. Actually much of the research conducted with these two selective learning tasks has been directed at testing the implications of theoretical formulations based on the findings of conditioning experiments. In other words they were employed to test the extent to which these theories were capable of integrating the low order laws obtained in the two fields of behavior — conditioning and simple, selective learning.

Why did experimental psychologists shift from their original interest in more complex tasks to these extremely simple kinds of behavior? One answer that we can reject immediately is that psychologists for some reason became less intrinsically interested in these complex forms of behavior than in the more simple activities. Nothing, of course, could be farther from the fact. The activities involved in the earlier experiments were much more interesting *per se,* for they are much more like behavior in real life situations. Certainly the study of chimpanzees piling boxes on top of one another, or joining two short sticks together and climbing a box to knock down a lure hanging out of reach is much more interesting than observing a rat monotonously pressing a lever in a Skinner Box or running down a straight alley. Nor is the answer that it is more easy to measure such simple behavior correct. There was no difficulty, for example, in obtaining a precise count of the number of errors made by a rat in wending his way through a serial maze involving fourteen or more blind alleys, and it would have been quite feasible, as Guthrie has since demonstrated, to photograph and subsequently analyze in as detailed a manner as desired the responses made in the various types of problem boxes.

The major deficiency of the earlier experimental studies was that they did not provide an understanding of the phenomena being studied. They failed to lead either to the discovery of a consistent set of laws or to a set of theoretical concepts by means of which one could derive the variations in the laws that did occur from one study to another. The major reason for this failure, undoubtedly, was that, just as in the case of experiments in human applied situations, the behavior was too complex and the determining variables too numerous and varied.

Perhaps a concrete example will help to clarify these statements. Numerous studies were conducted in the 'thirties with serial mazes, using both animal and human subjects, which had as their objective discovering what the effect of massing or distributing the trials would have on the rate of learning. The findings of these studies were highly conflicting. A majority showed that the briefer the intertrial interval, i.e., the greater the massing, the slower was the learning. On the other hand a goodly number obtained just the opposite result, while some found that this variable had no effect on the speed with which learning took place. To the best of my knowledge, no one has ever been able to offer an explanation of why these different results were obtained. Explanation of such divergent findings requires a more or less comprehensive theory, the abstract concepts and postulates of which will provide for the derivation of the specific findings found under the different boundary conditions (e.g., different maze patterns) holding in each investigation. Unless one has such a comprehensive theory, one cannot be said to have a very thorough understanding of the phenomena. Under such circumstances one has to do what the applied psychologist is forced to do — conduct a new experiment to ascertain what the effects of variation of the variable will be in each new situation.

Having been unsuccessful in their attempts to find adequate theories to account for such instances of complex learning, experimental psychologists turned to the investigation of simpler phenomena. Twenty-five years of experimentation with classical and instrumental conditioning have led to the discovery and formulation of a quite extensive body of fairly precise quantitative laws descriptive of the manner in which the stimulus, motivational, and incentive variables interact with each other and with various practice variables to determine performance in these situations. Because the system under study is a relatively simple one, involving a limited number of factors, it has been possible to isolate, experimentally, the effects of the relevant variables and to discover the lawful relations holding among them with fair success. Moreover, quite in contrast to the complex behavior situations, we find a fairly high, although as yet by no means absolute, consistency from one situation to another as to how the several variables act to influence performance. Thus we find that increase of the motivation or drive level, whether produced by different maintenance schedules of food or water, by degrees of electric shock, or by other means, usually produces a higher level of responding. Moreover, this finding obtains in every variety of experiment — classical conditioning of the salivary and leg flexion responses in dogs, eyelid conditioning in man, and in all the forms of instrumental conditioning with animals, whether of the lever pressing type or the simple runway.

Not only do these motivational variables act in this highly consistent manner, but the evidence also strongly indicates that each combines with the learning variable — number of practice trials — in the same multiplicative manner to determine the level of response. Thus, when proper precautions are taken, a general law relating the response measures to these two classes of determining variables may be formulated as follows:

$$R=f(M) \times f(N)$$

where M represents the operations defining the motivational variables and N the learning variable, number of trials. While the evidence is not so clear-cut, it also appears that the incentive or reinforcement variables (e.g., the magnitude of the reward) also combine in a similar multiplicative manner with N to determine the strength of the response.

I mention the above facts to emphasize the point that in these simple behavior situations, unlike the more complex ones, it has been possible to find laws that hold with some consistency. On the basis of such findings, moreover, Hull and others have been able to formulate theoretical schema that have served to derive, and hence integrate, the many specific low order laws that have been found to hold for the several response measures employed in the different conditioning situations.

Once formulated so as to be able to explain, in the sense of deduce, the known empirical findings of conditioning experiments, the theoretical model can then be extended by deriving implications to be expected in other, more complex, learning situations. Thus Hull and I have attempted to extend our theory based on conditioning phenomena to such relatively complex types of behavior as are involved in the simple T-maze, discrimination learning, and human verbal rote learning (2, 6, 7). While such attempts are as yet only in their beginning stages, they show considerable promise. For example, at Iowa we have recently been investigating the implications of our theory with respect to the effects of varying the level of drive on learning and performance in the simple T-maze and the visual discrimination situation. If one looks at the existing experimental literature on this problem one finds that, of twenty experiments, ten have produced findings showing that drive variation made no difference in learning, nine have reported that level of performance was positively related to drive level, while one study found that the performance of a high drive group was actually inferior to that of the low drive group over the period of training measured.

By means of our theoretical model it is possible to derive different implications as to what the effects of variation of drive level should be in simple selective learning involving two alternative responses and to specify the conditions under which these different results may be expected to appear. According to the implications of our theory, if the number of occurrences of the two alternative responses is kept equated by means of forcing some of the trials, learning to go to the positive (reinforced) stimulus and not to the negative (non-reinforced) stimulus will not be different under different motivation levels. Examination of the literature reveals that this prediction has been confirmed in five out of six experiments that have met this condition. On the other hand, it may be predicted from the theory that if the number of responses made to the positive and negative discriminanda are not equated, adequate drive differences will lead to differences in mastery of such selective or competitive response situations. Examination of the results of experiments run under this condition reveals that a majority have produced the predicted difference. In the case of one further study in which the initial strength of the positive, reinforced response was known to be weaker than that of the negative response, the theory predicted that the subjects under a high drive would respond more poorly than the low drive group during the training period observed. The results revealed this to be the case, thus once again confirming the theory.

It is apparent even from this very sketchy account that we are at least beginning to attain the kind of theoretical knowledge that permits prediction and hence control of behavior in new situations. Needless to say, we have a long way to go even in understanding at this level such simple kinds of behavior. In the case of our conditioning studies we are particularly in need of more information concerning the process whereby a response tendency is weakened by experimental extinction or non-reinforcement. When we have more complete knowledge about this process, particularly how the drive variable and prior incentive conditions determine it, I believe we will be in a position to account reasonably well for most animal learning phenomena and the simpler non-symbolically controlled behavior of humans.

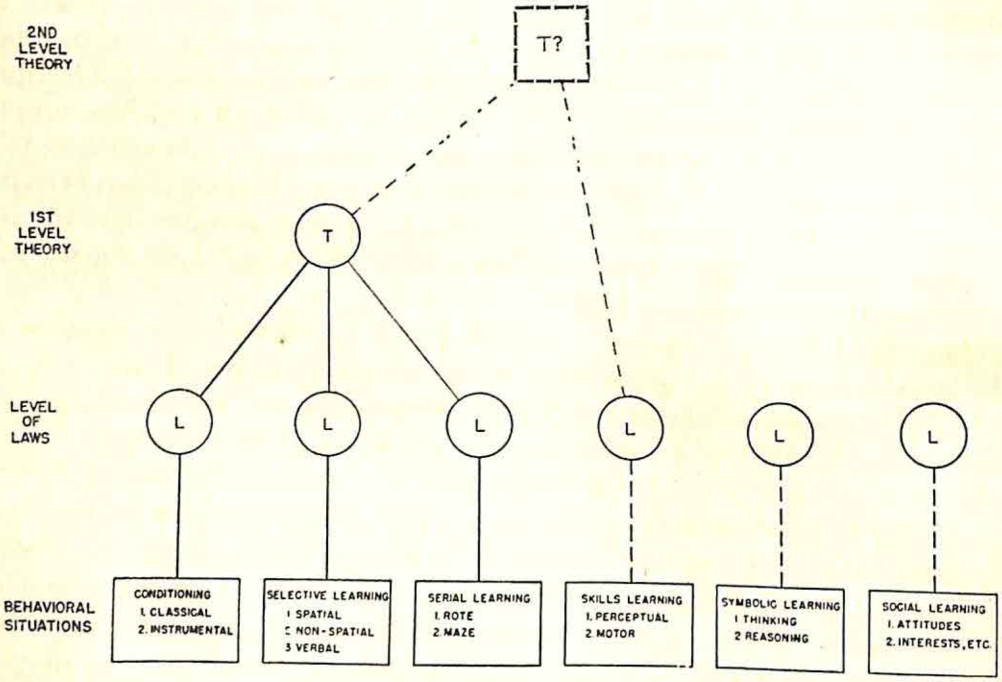

FIGURE 1: Levels of development of laws and theory in field of learning.

As to where we stand with respect to the whole gamut of learned behavior at the present time, Fig. 1 may be of some help. At the bottom of the diagram are represented the several areas in the general field of learning, both animal and human. In each of these areas observation and experimentation have led to the discovery and formulation of a body of low order laws relating the dependent response measures to the independent environmental and individual variables. The areas toward the left of the diagram are much more highly developed than those to the right, in the sense that a much more precise and complete set of laws has been discovered. The reason for this, undoubtedly, is the greater simplicity of these behavior situations; the number of variables operating is much smaller and their interactions are much simpler. As a consequence of this, the type of integrating theory we have been discussing exists, if at all, practically only in the first three areas (conditioning, simple selective learning, and serial learning). There is some indication, as shown in the diagram, that there is beginning to appear a theory of perceptual-motor skill learning, making use of some of the theoretical concepts of conditioning along with new concepts that have developed out of the perceptual-motor skills area itself. As yet very little, even in the way of lower order laws, exists in either of the most complex areas of behavior shown to the right. Progress in these latter fields requires a vigorous program of systematic research aimed at developing significant measures of behavior, identifying the relevant determining variables, and discovering the interrelations holding among them. It is in this area that the research-minded educational psychologist can make the greatest contribution.

Attention should perhaps be directed here to the point that even in these complex areas we at least have the potential for part of a theory of such behavior. Like Hull, I believe that in so far as the variables operating in simple behavior are also present in complex behavior, the same laws will hold. In the more complex situations there will, of course, be additional variables, and the interaction laws of these new variables with the more basic ones will have to be taken into account. Unfortunately, Hull's position on this matter has been misinterpreted to mean that the complex behavior of man involves only the laws involved in simple conditioning. Hull's term "primary" laws should have precluded this misunderstanding.

Thus far I have chosen to discuss the special role that theory has played in the development of our knowledge of the learning process. I have not considered the question: whether there are now available any laws of learning that could form the basis of an educational engineering program today? Those of you who are familiar with the recent work of Professor Skinner of Harvard know that he has been advocating the use of teaching machines as a means of increasing the effectiveness of teaching (3). The primary principle lying behind the use of these machines is what Skinner and Hull refer to as the principle of reinforcement. This principle is based on the one law that seems to me to have held consistently in all of our experimental studies of learning, no matter what the complexity of the situation. I refer, of course, to the so-called law of effect. First systematically investigated by Thorndike, this law has been stated in a variety of ways.

In a strictly empirical form it may be formulated as follows: responses accompanied or followed by certain kinds of events (called reinforcers) are more likely to occur on subsequent occasions, whereas responses not followed by this class of events subsequently show a lessened probability of occurrence. Such a formulation, it should be noticed, merely summarizes a relation that is observed to hold between two sets of events: (a) the subsequent probability of occurrence of a response in a situation; and (b) two different kinds of effects or outcomes of the response. This statement of the law does not imply any assumption as to the nature of the effects or how they operate to bring about the subsequent change in the strength of the response. All psychologists of learning, whether they favor or oppose some form of reinforcement theory, would agree with this empirical statement of the law of effect. Vigorous disagreement does exist, of course, over the theoretical interpretation of this law. Thus, reinforcement theorists, such as Hull, believed that reinforcers — which he specified in terms of drive reduction — strengthen the stimulus-response tendencies they accompany, whereas responses not accompanied by reinforcers are not so strengthened and may even be weakened. Contiguity theorists, on the other hand, would deny that the increased strength of any response tendency is due to (i.e., is caused by) the reinforcing event. Rather the function of the reinforcer, according to a contiguity theorist such as Guthrie, is that of protecting the increment of associative strength which is established merely as a consequence of the occurrence of the response to the stimulus.

From the point of view of making use of the empirical law of effect, however, such theoretical differences can be ignored, for all one has to do is discover by purely empirical means what events can come to serve as reinforcers. As far as our laboratory studies are concerned we have been able to specify such reinforcing events (whether of a primary or secondary nature). Once identified, as Skinner has shown, they may be used most effectively to bring about the learning of new behavior. The essential requirement is that the response one wishes to strengthen be made to occur and then be followed *immediately* by the occurrence of a reinforcer. This is precisely what Skinner's machines do. Employing the Socratic method of questioning, the machine requires the student *actively* to compose answers to questions and then provides him immediately with reinforcement if he is correct. By careful programming of the material to be learned the likelihood of the appropriate response is kept high and hence the frequency of reinforcements is also kept high. The student is forced with such machines to make all of the desired responses at each stage of the training, receiving immediate reinforcement. By contrast, the student has infrequent occasions for responding in class and receiving reinforcements, and on examinations reinforcements are delayed and non-specific.

With the introduction of such teaching machines and the proper preparation and programming of the material by the subject matter expert and the psychologist, the primary duties of the classroom teacher would become very different from what they now are. Prominent among these, as I would envisage it, would be the building up of interests and goals in the student which, in turn, would provide for events that would serve both as secondary reinforcers and incentive motivators. It is in this latter regard that the schoolroom is so deficient today. Interestingly enough, as I understand the process of acquisition of secondary reinforcing and incentive motivation properties by stimulus events, it is a fairly simple kind of classical conditioning about which we already possess a considerable amount of knowledge. Indeed, I am even more optimistic about the improvement of the educative process that can be brought about by controlling this kind of learning more effectively than that which can be brought about by teaching machines in the case of the skill aspect of learning. It should be noted, however, that it is the freeing of the teachers' time made possible by the use of machines that permits this.

That the time is ripe for a combined research effort on the part of psychologists and educational psychologists seems abundantly evident. However, lest my present enthusiasm catch me up in such a program, as it has my colleague, Skinner, I shall hasten back to my waiting rats and human eyelids.

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The Science of Learning and the Technology of Educational Methods

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In response to the question, "Can the laws of learning be applied in the classroom?" I have chosen to discuss the relationship of the science of learning, as a part of the science of psychology, to the technology of educational methods, as a part of the broader subject which is education. This reflects my conviction that the proper question for consideration is not *whether* the science of learning and the management of learning in the classroom can be mutually supporting, but *how* this desirable — even necessary — relationship can be achieved. What follows is, therefore, an attempt to state some of the assumptions and inferences about the science of learning and the technology of education that make this phrasing of the question necessary, some of the difficulties that stand in the way of achieving the desired mutually supporting relationship, and some ways to overcome those difficulties.

Even though only a part of psychology and a part of education are under consideration, these parts are the core problems of both psychology and education, respectively. On the one hand, the problem of learning — its nature and conditions — is so fundamental to the whole of psychological science that there is frequent, and understandable, confusion between the terms "learning theory" and "behavior theory." On the other hand, the technology of educational methods — if one means by this, as I do, all methods of management of the learning processes of others in order to achieve certain prescribed behaviors or behavior capabilities — is the fundamental technical question in education. There are, of course, other points of intimate and important contact between education and psychological science. It is not my intention to consider them here.

As regards education, the present discussion rests on acceptance of an assumption and two corollaries. The assumption is that educators, whatever their ultimate goals and within whatever social or political system, must know how to manage the learning process in order to achieve the acquisition, retention, and readiness for use of certain knowledges, skills, and cognitive capabilities. As a first corollary of this assumption, it is assumed that educators must know how to manage the inculcation of attitudes and motives that are necessary for the acquisition and effective utilization of such behavior capabilities, since motivation and learning cannot be considered separately, and the motives of man are largely acquired and thus subject to molding in the educative process. A second corollary is that educators must know how to manage the learning of both behavior capabilities and motivations at all stages of man's development from infancy to adulthood and for all levels of talent, whether that talent is innate or previously acquired.

An assumption about the science of learning and two corollaries also need to be made explicit. These prove to be homologous to those about the technology of educational methods. The assumption is that the science of learning — whatever may be its current limitations of fact and theory — encompasses all forms of relatively permanent modifications of behavior resulting from experience, with perhaps the exception of those modifications commonly identified as sensory adaptation and fatigue. This means that the science of learning must organize our knowledge and understanding of the acquisition of attitudes, motives, affective and emotional responses, mental sets, simple and complex discriminative acts, serial verbal and motor acts, motor and perceptual skills, meanings, concepts and abstractions, and various cognitive capabilities that go under such names as ideational problem solving, thinking, reasoning, decision-making, and even creative invention. In short, I cannot think of any kind of behavior or behavior capability that does not properly belong within the scope of the science of learning if it is a kind of behavior that needs to be managed by education.

The two corollaries of this assumption about the science of learning pertain to the necessary inclusion of: (a) the interactions of learning and motivation; and (b) the interactions of learning and individual differences in talent within the scope of that science. The first of these — the interactions of learning and motivation — has long been recognized by "learning" psychologists as a necessary part of the understanding of learning, and is, in fact, one of the principal reasons it is difficult to distinguish "learning theory" from "behavior theory." But the interactions between learning and individual differences in talent have been relatively neglected in both our learning theories and in our systematic empirical research leading to the analysis and control of the learning process.

These assumptions about the science of learning and the technology of education lead to the necessary inference that the two endeavors have the traditional relationship of science and applied science. Thus, education is to psychology and the social sciences as engineering is to the physical sciences and as medical practice — especially preventive medicine — is to the biological sciences. This analogy — especially the analogy between education and engineering — is one that should be self-consciously adopted and exploited by education. This is not to say that I am advocating that education be described as "human engineering," especially since that term has been pre-empted by psychologists to describe the applications of psychology (and physiology) to the design of man-machine systems, and this is far removed from the function of education. However, the analogy of engineering to education — one purposefully designing and shaping hardware to the needs of society and the other purposefully designing and shaping human software to the needs of society — proves useful in thinking about the technology of educational methods.

A principle advantage of this conception of education is that it serves notice on all concerned that education has its roots firmly planted in the behavioral sciences, and therefore has a great stake in the acceleration of advances in those sciences. A second advantage is that it becomes self-evident that education is not just the straightforward application of the science of learning, any more than engineering is just a straightforward application of the physical sciences. Just as physicists discovered things that made the creation of television possible, but engineers created television, so likewise psychologists have discovered many things about the learning process, but educational technologists must design curricula and teaching machines that exploit that knowledge. A third advantage is that the model based on the relation between the physical sciences and engineering leads one to expect a relationship of mutual dependency between the science of learning and the technology of education, especially at the frontiers of knowledge of both. Thus, new discoveries in science make new achievements in technology feasible, and recognized sources of deficiency in technology guide the explorations of scientists. The same sort of give-and-take should occur between the science of learning and the technology of educational methods when the powerful value of the mutually supporting roles of the scientist of learning and the manager of learning are once again recognized by psychology and education.

It seems abundantly clear that the science of learning and the technology of educational method at one time prospered in a climate of mutual support, that this has not been the case for some years past, and that such a climate of mutual support should be reinstated in the best interests of both. How did it happen that the science of learning and education have drawn apart when, at least during the last 15 years, large numbers of experimental psychologists, many of whom were specialists in the science of learning, have been actively engaged in developing an understanding of learning and techniques for managing education and training in military and industrial contexts (5)? Textbooks of educational psychology now give a much smaller proportion of their space to the topic of learning and to the techniques for managing the learning process than they did 15 years ago. And some of these textbooks do not even attempt to reflect contemporary theory and recent discoveries about learning. On the other side, it is also a fact that textbooks of the psychology of learning fail in many instances even to refer to research in educational contexts (3), although some of that research has as great significance for understanding the learning process as does research in laboratory contexts traditionally accepted by the science of learning.

The schism between educational psychology and the psychologists who are most actively pursuing the science of learning — the so-called experimental psychologists — is even revealed in a factor analysis of membership in the divisions of the American Psychological Association (1). In terms of a criterion of overlapping membership between divisions of APA, the overlap between Experimental and Educational Psychology ranked thirteenth in the seventeen divisions when the reference was membership in the Division of Experimental Psychology, and sixteenth in the seventeen divisions when the reference was membership in the Division of Educational Psychology. And the relationship between experimental psychologists and school psychologists was among the lowest in the entire American Psychological Association!

But perhaps the most significant index of the situation is to be found in the scanty output of research on the psychology of learning which has an explicit orientation toward the techniques of civilian education. I do not mean to say that there is no output, or even that the output is less than it was, say, twenty years ago. But we are living in an era of great programs of sponsored research (for instance, those sponsored by the National Science Foundation, by the National Institutes of Health, and by the military establishment), and it seems quite clear from the evidence available that educational technology, as such, receives very little of this support (9). It is also my understanding that some of the bills on federal support of education which were before committees of Congress in 1958 contained scant mention of the need for and support of research on the learning process and educational techniques until there was some prompting by witnesses (7, 10).

Additional confidence in the validity of this judgment about the level of effort aimed at educational applications is given by the situation in the *Journal of Experimental Psychology* and in the *Journal of Educational Psychology*. The former is overloaded with research studies on the psychology of learning. About two-thirds of its 800 to 1,000 pages each year are about learning. It is also worthy of note that, in this mass of research on learning, there is almost never a reference to the implications of the findings for education, although there are frequent references to the implications of findings for engineering psychology, military training, and clinical psychology. I have classified the articles in the *Journal of Educational Psychology* and found, by contrast, that among those it has published in the past several volumes, those having to do with the conditions of learning and the management of learning in school situations make up less than twenty-five percent of the relatively small number of articles published each year.

It seems reasonable to conclude, therefore, that there is indeed a rift between the science of learning and educational method. It also seems reasonable to conclude that there has been a tremendous acceleration of activity and publication within the science of learning, but that there has been no comparable expansion of effort in the technology of educational and training methods except that which has been supported by the military.

Let us admit, then, that there is lack of communication and lack of mutual support between the science of learning and its principal field of application. Let us grant, further, that this is an unfortunate situation and that it should be corrected in the best interests of the science, the technology, and our society. What then?

The wisest first step seems to be to look at some of the difficulties that must be faced if an integration of scientific and technological effort is to be achieved. I refer here to difficulties that are intrinsic to the integration that is to be attempted, not to *ad hominem* difficulties such as the failure of experimental psychologists to be interested in the educational applications of their findings or the failure of educational psychologists to be motivated or equipped to understand and interpret for education the most recent discoveries or the more abstruse theories of learning. These personnel problems will, I believe, diminish or disappear when the partnership is properly conceived and supported. In 1946, for example, few psychologists were involved with the military establishment, as few experimental psychologists are involved in education now. Few would have predicted in 1946 that in 1956 some 700 psychologists, or five percent of the membership of the American Psychological Association, would be engaged in research, development, or service associated with the National Military Establishment (5).

First among these intrinsic difficulties is the present status of the science of learning. While there have been impressive advances in psychology (4), and especially in our understanding of the learning process during the past 20 years (4), the fact remains that there is no unified science of learning — and this makes application difficult. Although we know a great deal about classical and instrumental conditioned responses, about selective learning and discrimination, about rote verbal learning, about the learning of perceptual and motor skills, and we are rapidly gaining knowledge about ideational problem solving and decision making, these advances in empirical generalizations and in the theoretical integration of these generalizations have resulted only in *islands* of knowledge and understanding within the science of learning. Furthermore, even within these areas or kinds of learning that have been named, one finds it necessary to place constraints upon our generalizations, because only a limited number of samples of these kinds of learning have been employed in the investigations. Thus, most of our knowledge about conditioning in human subjects is based upon the eye-blink response or the galvanic skin response; most of our knowledge about the capabilities of human subjects to react appropriately (or somewhat so) to the probabilities of stimulus events is based on simple two-choice guessing situations; much of our knowledge about the learning of perceptual-motor skills is based on tracking or positioning tasks; and most of our knowledge about verbal learning is based on rote serial or paired-associate learning of nonsense syllables or single meaningful words. And finally, it must be recognized that a very large proportion of our knowledge about the learning process has been gained in equally specific experimental situations with sub-human subjects.

Our description of what appear to be the limiting characteristics of the present science of learning should not, in the present context, be considered as a criticism of the way the science of learning has been conducted. There are very good reasons why the most productive scientists in the field of learning have chosen very simple tasks as the focal points of their research and theory, and there is admirable modesty in the effort to build theories that may link two or three of the islands of knowledge before claiming an integration of all the islands (8) (as was customary when psychology was plagued with the *Psychologies of 1930* [6]). Neither should our description be considered as proof that nothing in the science of learning can be used in the management of learning in school situations. The science of learning *can* provide guidance for the management of learning if one has understanding of the science, understanding of the learning to be managed, and ingenuity. However, except in those instances in which the basic scientist has used a practical human task — such as radio code learning, language learning, or target tracking — as the medium for his experimental and theoretical analysis, and this task is also one the learning of which needs to be managed, one cannot expect a cook-book translation of empirical law into management principle.

This brings us to a second, and related, difficulty that must be faced. I refer to the lack, in behavioral science in general and in human psychology in particular, of what may be called a taxonomy of tasks. I shall not dwell on this beyond a statement of what I mean by it, and what it means for the integration of psychology and education, because it is a topic far beyond the scope of this paper — and furthermore, because I can see the problem but I cannot see the solution for it! My statement means that psychology does not have a satisfactory classification scheme in terms of which specific tasks engaged in by human beings can be described, identified, and placed in a dimensional matrix in relation to other tasks. Without this taxonomy we are forced to use such crude descriptive categories as we referred to previously — discrimination learning, selective learning, tracking, concept formation, paired-associate learning — with the implication that we believe in a typology of learning, when, in fact, most of us do not, and when, in fact, it is known that all instances within these classes are not functionally equivalent.

So, the psychologist, in addition to being plagued with a wealth of variety in human tasks, faces this universe of tasks without even the crutch that would be provided by a systematic taxonomy. This lack of taxonomy places substantial limitations on the ordering of our knowledge about learning and on the feasibility of communicating that knowledge. It therefore stands in the way of the identifications of isomorphisms between learning tasks about which there is information from the laboratories of psychologists and knowledges and skills in which individuals need to be educated. Even tentative refinements in our present crude descriptive classification of tasks would, if combined with an agreement to standardize, greatly improve the communication between, and integration of, the science of learning and each of the education and training technologies that relate to it.

The third major difficulty that must be faced is the prevailing confusion among scientists, technologists, and the users of science and technology regarding basic science and applied science, or technology, on the one hand, and regarding research and operational evaluation, on the other hand. Much has been written and said on this set of problems during the past ten years, largely because the military establishment has been so purposeful in its support of science, and we now have military regulations that define exploratory research, fundamental research, background research, applied research, technical development, and — in the Air Force at least — eight different phases of testing of the product of technical development. But gross misunderstanding persists. Furthermore, this misunderstanding may be particularly detrimental to the integration of the science and technology in which we are interested, because the science is youthful and the area of application — education — is laden with tradition.

The first misconception that should somehow be avoided is the notion that basic and applied research are antithetical to each other, and that the knowledge gained by basic and applied research does not join together to constitute the science of learning. Such contrasting of the two leads to the implication that both cannot be prosecuted within a single research program, and that different kinds of people with different skills and capacities are engaged in each. These and many other false implications will be avoided if it is remembered that basic and applied research lie on a single continuum, and that the variable involved is the freedom of the investigator in the manipulation of independent variables. Obviously, the more constraints one places on the freedom of the investigator to manipulate variables, the more restricted will be the information gained from the research. Much basic research that goes on in our laboratories of psychology in universities suffers constraints, such as the non-availability of subjects other than college sophomores or the limitation of subject availability to one hour, which act to limit the scientific process and restrict the generality of the findings; on the other hand it is not difficult to conceive of a truly basic research effort on concept formation which would be conducted entirely in a school setting.

This point leads to identification of a second misconception, which is that the instance of learning or kind of learning selected as the object of investigation somehow determines whether the research is basic or applied. This is not true. The science of learning properly includes the understanding of any instance of learning, whether it occurs in paramecia, rats, monkeys, children, or human adults; whether it occurs in the speed of running, in learning a discrimination, in learning nonsense syllables or English-Russian equivalents by rote, in understanding the meaning of "dog" or "cosine," or in discovering the solution to a problem previously unsolved by man. If this view is accepted, then it should be evident that the scientific analysis of the learning of school subjects by six-year old children is not, for reason of its practical value, necessarily applied science, as compared with, say, the learning of the bar-pressing habit by the rat. In fact, within military psychology there have been some quite "basic" programs of research that were at the same time quite directly concerned with the learning of military tasks — such as the programs on the perceptual skills in target detection, on perceptual-motor skills in tracking, and on ideational skills in malfunction-diagnosis in complex equipment (2).

My next point relates to the over-valuation of applied research when research is being conducted for a purpose, such as the improvement of educational methods. By applied research, I mean, of course, research that is far over toward the end of the continuum where the investigator works with little freedom in the manipulation of independent variables. This usually reduces to a matter of comparing Method A and Method B in the learning of spelling, comparing Training Aid A and Training Aid B for learning history, or in the military, comparing learning with the assistance of a training device and learning without a training device, etc. There was a time, for example, when military psychologists believed that every training device should be evaluated by such an empirical study. A number of us who have been associated with large research programs with applied goals have become very skeptical of such studies. They are usually very costly, and the information gained from them is relatively small in amount and very difficult to interpret. Even if one has been quite careful to obtain a number of independent criteria in terms of which to evaluate the difference between A and B, the information gained is very small compared to that obtained from more analytic, experimental approaches to the problem. The alternative to such applied experiments is to undertake the development of a training program which is designed component-by-component on the basis of sub-programs of highly analytic research studies or on the basis of tests of the applicability of previously established generalizations to the specific context of application, e.g., the age of the learner, the nature of the material being learned, the type of learning involved, etc. Then the final step in such a research and development program is what might be called an "operational suitability" test in which the whole training program is put into actual schoolroom use and the outcomes are routinely measured against the outcomes of previous operational programs.

The final difficulty that I think must be faced in the attempt to integrate the science of learning and the technology of education is that of gaining access to children of school age for the types of experimental investigations that must be accomplished if the science of learning, as it has developed in our laboratories of psychology, is to move in the direction of greater communality with the technology of education. By and large, the organisms most commonly employed in studies of learning by experimental psychologists have been rats, sub-human primates, and college students. Even the military research program has not helped matters too much, because the subjects of these studies have been generally high-school juniors or older (even though some gain resulted from the fact that the populations used have been much more heterogeneous than college students with respect to mental ability). This concentration of effort on samples of human subjects not representative of those whose learning is to be managed in the schools, is not — I am sure — by the choice of the psychologists, but reflects, instead, the difficulty encountered in gaining ready access to school populations for analytic studies that might or might not have any apparent relevance to the proper functions of the schools.

So far I have developed a number of notions that seem to me to be relevant to the question, "Can the laws of learning be applied in the classroom?" First, I have attempted to answer the question in the affirmative by identifying the management of learning in the classroom, among other places, with a technology, like engineering, which depends upon the science of learning, but needs to be especially nurtured if its goals of efficient and effective educational techniques are to be achieved. Secondly, I have pointed to the evidences that, for some reason, the science of learning and the technology of education have lost, over the past 20 years, the unity they once seemed to have. While the science of learning prospered both within the universities and in military and industrial settings, the technology of learning in the school has shown no such prosperity. Thirdly, I discussed several difficulties that needed to be overcome if a vigorous and effective partnership of the science of learning and the technology of education were to be achieved.

It now seems appropriate to consider the sorts of things that must occur over, say, the next five to ten years, if a symposium such as this in 1963 or 1968 is to have as its title "Recent Advances in the Science and Technology of Classroom Learning."

The first requirement seems to me to be the formal statement of the details of the relationship between the science of learning and the technology of educational method. This effort would encompass the definition of the kinds of research that contribute to the science, the technology, or both. It would also recognize, and give examples of, the distinction between research and development, and between research and the operational evaluation of the training "packages" produced by development activities. In short, such a formal statement would provide an agreed-upon "grand strategy" for the acceleration of both the science of learning and the technology of education.

This would be a very worthwhile effort for two reasons. (a) The drifting apart of the science of learning and educational psychology has, I suspect, resulted from the lack of an explicit strategy for holding them together at the level of advanced training and research. (b) The recent involvement of hundreds of highly qualified psychologists and educational psychologists in military psychology has provided a concentrated experience with such strategy questions which should be brought to bear on revitalizing the relationship between psychology and educational psychology.

The second requirement seems to be a series of research and development planning efforts in which the objective is to formulate the scientific and technological problems in special areas of education. The areas selected for such studies might be defined in terms of content areas, such as language learning, arithmetic, or attitude change, although it would probably be best to have the initial effort directed toward defining the problems that should be considered together or separately.

The objectives of such planning efforts would be: first, to identify the present "state of the art" in the management of a particular type of learning important to the educational program; second, to identify and order in some type of priority system the needs for improvement of the management of such learning; third, to identify the aspects of the problem which are amenable to research with full and sympathetic consideration given to "basic" research approaches needed to gain better understanding of the phenomena and to "applied" studies needed to gain better control of the applications to the educational context; and fourth, to identify the needs for "development" studies to "program" the learning processes for specific school subjects in exact forms in accordance with scientific principle and technological rule in order that the "state of the art" of education may be moved to a new level and subjected to appropriate "operational evaluations."

A third requirement is for facilities and subjects for research and development studies. There is a critical need for laboratories, perhaps institutes, where both basic and applied studies proceed side by side, and where the children are provided as subjects in accordance with the needs of the research, instead of by chance or by persuasion that there is immediate "pay-off" for an educational problem.

Finally, there must be a reexamination of the training of psychologists and educational psychologists with these opportunities in mind.

My conclusion from all this is that the present low level of interest and effort in the application to the classroom of recent advances in the science of learning is a state of affairs which can be corrected. Furthermore, it seems to me that vigorous effort to apply the necessary corrective measures to both the science of learning and the technology of education is in the best interests of a healthy science of psychology and a healthy profession of education. But over-riding all these considerations is the conviction that the full realization of the human resources of this nation cannot be achieved without a science-based management of learning processes of our children. It seems to me, therefore, that we should get on with the business, so that within a few years we can know that the goals of educational psychology are at least as well supported by educators, psychologists, educational psychologists, and all of our citizens, as are the goals of military psychology.

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Verbal Learning in the Educative Processes

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Does our understanding of verbal learning obtained from laboratory studies have any substantial relevance for the understanding of verbal learning which occurs in our schools? That the acquisition of verbal habits is a central part of the educative process seems certain. We learn to read and to spell. We master a foreign language. We learn to write. We establish some comprehension of the sweep of history through the remembrance of the relationships among key events in time. We memorize many, many rules of procedures as a convenient way to expedite work at a more creative level. On the surface, at least, it seems that this wide variety of habits is just what has been dealt with in the laboratory. That is, the laboratory studies of verbal learning have dealt with factors influencing the acquisition and recall of verbal units of various kinds and sizes. They have, furthermore, dealt with processes involved in putting the units together in a sequence and thus have dealt with how one unit comes to be functionally attached to another.

To determine whether or not the laws of verbal learning are applicable to the classroom might seem to involve only a judicious consideration of the possibilities of scientific generalization. That is, one could assess the similarity of the conditions between the laboratory and the classroom and then make a judgment as to whether or not the principles found in the laboratory would hold in the classroom. As in all forms of human endeavor, there are clear individual differences among psychologists in the zest for such extrapolation. To take extreme cases, a physiological psychologist who long ago convinced himself that there are no basic differences in the principles underlying the learning of planaria, white rats, and men, would probably show little hesitation in generalizing from the laboratory to the classroom. At the other extreme is the ultra-conservative scientist who is so reluctant to generalize he refuses to say "Good Morning" until noon.

It is appropriate to ask the following questions before decisions of whether or not laboratory findings of verbal learning should be generalized. Are the tasks which have been used to study verbal learning in the laboratory representative of the verbal tasks in the school curriculum? Are there basic differences between the laboratory subject and the student in the classroom? Does the laboratory subject leave critical parts of himself outside the laboratory?

The relationship between the laboratory and real-life situations can be evaluated in still another manner, and it is one which removes some of the dangers involved when the scientist over-extends his facts and theories. One may view the laboratory as a fast, efficient, convenient way of identifying variables or factors which are likely to be important in real-life situations. Thus, if four or five factors are discovered to influence human learning markedly, and to influence it under a wide range of conditions, it would be reasonable to suspect that these factors would also be important in the classroom. But, one would *not* automatically conclude such; rather, one would make field tests in the classroom situation to deny or confirm the inference concerning the general importance of these variables. These do not need to be extensive tests; they need only be a representative sampling of the range of variables. This procedure is likely to succeed because it deals only with phenomena of a magnitude large enough to have practical importance. It is a fact that some of the phenomena dealt with in the laboratory studies of verbal learning are so small in magnitude and so highly dependent upon a specific set of conditions that they would probably be judged of little or no consequence for the school situation. For example, for a number of years the writer has been doing studies on the influence of massed *vs.* distributed practice in verbal learning. The research has reached a point where it can be concluded that the facilitation produced by distributed practice is so restricted to a particular set of conditions and the facilitation is so slight that it should have little or no significance for the classroom or study halls.

There should be no misunderstanding at this point. A "small" phenomenon may be very important in leading to a scientific understanding of learning and yet be of little practical importance. A scientist's major interest is usually with advancing the understanding of the learning process and such advancement might well be brought about by studying "little" phenomena as well as "big" ones.

Now in truth, many of the so-called facts, or laws, or phenomena of verbal learning were derived from studies closely approximating the classroom. This is more true for the studies performed in the earlier years of research than for contemporary ones. Nevertheless, group experiments, done in a classroom setting, are not at all unheard of today and for many purposes seem to be quite satisfactory. Therefore, speaking of laboratory studies is only a manner of indicating a situation where there is some control of conditions and an active variation of some particular factor or factors. The important point is that the danger involved in generalizing from the laboratory to the classroom for verbal learning studies may be less than anticipated, for in fact the classroom is often the laboratory.

Based on laboratory studies, what variables or factors are most important for verbal learning in the sense that their manipulation produces large differences in acquisition rates? Available evidence indicates that such a list would include *meaningfulness, intratask similarity, intertask similarity, active recitation* vs. *passive study,* and perhaps one or two others. Such a list would *not* include such variables as the *affective characteristics of the material, massed* vs. *distributed practice, whole* vs. *part learning,* most *motivational variables,* and many others. It should be clear that the above listings are not intended to be exhaustive, but are given merely to illustrate that evidence from the laboratory does allow the indication of certain variables which have high probabilities of being important for learning in school situations and others which have low probabilities. Any thorough-going presentation would obviously require the marshalling of evidence to support the listings. For example, some may object to the listing of motivation as a relatively minor factor. Yet, a consideration of available evidence, and keeping a distinction between learning and performance, justifies its inclusion in a list of minor variables.

To those who are steeped in traditional forms of learning theory, the factors listed above as being of greatest importance for verbal learning may cause some discomfort. Traditional learning theories (e.g., those of Tolman, Guthrie and Hull) were attempts to state the minimal and critical number of conditions necessary for learning to occur. There are sometimes spoken of as primary variables and include such factors as rewards and punishments, frequency, recency, contiguity, drive reduction, and so on. They seem to be at a different level of discourse from those variables which I listed above as being of importance for verbal learning.

Generally speaking, contemporary work in human verbal learning does not pay much attention to the classical theoretical variables. This has not always been the case. It will be recalled that E. L. Thorndike was concerned primarily with variables which correspond closely with those traditionally entering into learning theory, and Thorndike evaluated much data in human verbal learning in the light of these variables. That is, unlike most learning theorists who selected animal learning data or simple conditioning facts as their basic phenomena, Thorndike attempted to include human verbal learning as well as animal learning in his explanatory attempts. But since Thorndike's last major work on learning in 1935 (*The Psychology of wants, interests, and attitudes*), very little systematic research effort in human verbal learning has been devoted to the variables he was primarily interested in. Thorndike's work on human verbal learning dealt with such factors as rewards and punishments, recency, frequency, belonging, and so on. *Meaningfulness* does not receive systematic consideration in his work. A few pages were devoted to what he calls *identifiability* but which we would now call intratask similarity. *Forgetting* is neither systematically experimented upon nor does it enter prominently as a phenomenon to be explained in Thorndike's work. Except for work on *spread of effect*, most work on verbal learning by other investigators has been with quite a different set of variables from the ones with which Thorndike worked. This is a rather curious state of affairs and warrants some further consideration.

Did Thorndike's work on verbal learning settle the issues with which he was concerned? As is well known, Thorndike was a prodigious worker; he rarely named experiments, preferring instead to number them. In the *Fundamentals of learning* alone he reports 104 experiments. It is then quite possible that Thorndike's work did indeed settle some issues. What were these issues and what were his methods?

Thorndike, in most of his verbal-learning experiments, made a definite attempt to simulate the classroom. In fact, in some experiments the instructions given the subjects suggested that they pay attention in an amount that would seem to be *less* than for the usual classroom. In many cases the subject was told simply to listen passively, or in some cases to listen as if he were hearing a lecture. In others the subject was never told that he would be tested for learning so that the operations correspond to what we now call *incidental learning*. One of the major issues to which such experiments was directed concerned the role of *frequency,* sometimes spoken of as exercise or repetition. It was Thorndike's final conclusion that frequency or repetition without *reward* or *belonging* was a very minor factor in learning. It is this conclusion which, in one form or another, will be the major point of the remainder of the discussion.

The present writer is not prepared to argue that Thorndike's conclusion concerning exercise or repetition effected educational policies and practices. It may have had no influence, for, it may be no more than a coincidence that changes and educational practice occurred in which mere repetition in the classical memorizing sense was looked upon with some disfavor. The fact remains that the phrase *rote learning* became something to avoid; it was to be replaced wherever possible with *meaningful learning*. An extreme instance of such policy would mean that the student would not memorize the multiplication tables in a rote fashion. He would be supposed to acquire this knowledge over a period of time as a consequence of having to use multiplication in contrived situations, such as, say, a play store. Undoubtedly no practice of this policy has been quite this extreme, but it seems clear that there has been a marked deemphasis of rote acquisition.

The above observations, although somewhat unrelated, are necessary background for the remainder of this paper, the direction of which can now be stated. First, some question will be raised concerning the appropriateness of Thorndike's conclusion about the role of frequency. Second, the possible relationships between the powerful verbal learning variable of meaningfulness and frequency will be evaluated. Third, an hypothesis will be offered as to how frequency influences learning. The analysis is presented as an *illustration* of the type of work which may be necessary if the laws of verbal learning are to be maximally useful in the classroom.

A RE-EVALUATION OF THE ROLE OF FREQUENCY

This is not the place for a careful evaluation of Thorndike's methods and his inferences from his data. In his classroom-like experiments with verbal material he was the first to point out the possible sources of error. But he proceeded to perform many experiments around the same topic and concluded that it was unlikely that all of them could be in error in the same direction. It was from such experiments that he concluded that frequency *per se* was of little importance for establishing a functional connection between two specific items. This conclusion states that contiguous repetition of two items is in itself of little consequence in establishing a connection between the two items. While it is the writer's belief that this conclusion could be shown to be at least partially in error, let it be accepted. But, to accept this conclusion does not automatically imply that mere repetition is of no consequence for learning when the conception of learning is expanded to something more than that of establishing a functional relationship between two specific items. If verbal learning is viewed in a somewhat broader context than is usually associated with Thorndike's work, repetition may regain its status as a very fundamental part of the learning processes. Several steps are necessary for this argument to be developed adequately.

One of the common verbal tasks used in laboratory studies is called paired-associate learning. In this task a series of pairs of items are presented to the subject who is instructed to learn to be able to say the second member of each pair when the first is presented alone. An example in the classroom is the learning of a foreign language vocabulary as responses to English words. A two-stage analysis of paired-associate learning (as well as other kinds, such as serial learning) is logically necessary. First, the subject must be able to recall responses; he must have the responses available. The second stage is that of connecting or hooking-up these responses to specific stimuli. Now it is quite possible that the laws governing these two stages are not identical; factors which influence the first may not influence the second. Thorndike's work may not provide a final evaluation of frequency effects (exercise effects) because he did not test for independent effects of frequency on the two stages. Thorndike's experiments on this matter cannot be considered here in detail; it is sufficient to say that it may be quite possible, using Thorndike's method, to show that had other tests of the possible influence of frequency been made, the results would have been positive. That there was an uneasy feeling in Thorndike's own mind toward the influence of frequency is suggested by the following quotation: "The repetition of a situation does, of course, cause increased familiarity with it . . ." (13, p.63). This term, *familiarity,* is important, for if it is shown that familiarity has an influence on learning then it immediately is referred to frequency as a fundamental factor even in Thorndike's own system.

The discussion, then, turns to the concept of familiarity. What I presume Thorndike meant by familiarity is almost perfectly correlated with another dimension of verbal material, namely, *meaningfulness*. This identity has been clearly established by Noble's work (5). Meaningfulness (as defined by Noble) is the number of different associations elicited by a verbal unit. His familiarity values were defined by mean ratings along a simple rating scale. It will be remembered that earlier in this paper meaningfulness was listed as a very powerful variable in the learning of verbal material. The fact that the three-letter combination of CAT would be attached to a stimulus much more rapidly than would ZAQ shows the influence of meaningfulness. Much of our educational effort is devoted to making relatively meaningless verbal units meaningful. Through reading and spelling the child's vocabulary is gradually increased. Learning a foreign language involves the giving of meaning to previously meaningless symbols. When it is asked how these changes occur, the experimental evidence suggests strongly that meaningfulness produces its powerful effect on learning primarily because it facilitates the first stage of verbal learning. The higher the meaningfulness the more readily are verbal units recalled.

Thorndike's concept of *availability* is highly similar to that which is being called here response recall. Furthermore, Thorndike says: ". . . responses require much practice to reach the status of easy availability" (13 p. 351). Thus it would seem that Thorndike is saying that frequency is primarily responsible for establishing the availability of a response. The one fact which is not clear is whether or not this practice, or frequency, can produce availability even though rewards are not present. For, if it is necessary that reward be present, frequency again would be said not to have independent status, and Thorndike's basic conclusion about frequency, noted earlier, is not violated. Without arguing the issue, the position is taken here that most of the verbal learning observed in the laboratory is largely independent of immediate reward.

FREQUENCY AND MEANINGFULNESS

There are several ways by which meaningfulness of verbal units has been defined. The classic study is that of Glaze (2) who determined whether or not subjects "got an association" to a nonsense syllable within a limited period of time. Several other techniques have been used by other investigators (e.g., Noble's method, noted earlier). The correlations among the resulting values for identical units are high enough to make it reasonable to conclude that all methods are essentially dealing with the same characteristics of the verbal material. Evidence can be marshalled to show that scaled meaningfulness and frequency are directly related. Two such sets of data will be mentioned here.

Noble (3) scaled 96 words or paralogs for meaningfulness. The rate of learning these words or paralogs is directly related to scaled meaningfulness (4). A determination was made of the frequency with which his 60 highest ranking units occur in the Thorndike-Lorge list of 20,000 most frequently used words (14). Table 1 shows the results. It is quite clear that the units with high meaningfulness (e.g., *kitchen, army, money,* etc.) occur more often than those with low meaningfulness (e.g., *stoma, grapnel, flotsam*).

When nonsense syllables are scaled for meaningfulness and then subjected to a learning test, the differences in rates of learning as a function of meaningfulness are marked. Nonsense syllables, it will be remembered, are combinations of three letters in which the first and last letters are consonants and the middle letter a vowel, and which do not form an English word. But it is quite possible that these syllables occur with different frequencies *within* words in the language. And indeed this is the case. From a sample of 15,000 words the frequency with which each three-letter combination occurred was determined. There are many ways in which the data can be presented. One way is to ask simply: "For each association value of nonsense syllables, what proportion of those syllables are also found in the English language?" A graph has been prepared to demonstrate the relationship. Using the Glaze values, which are plotted along the baseline, it can be seen that as the association value — the meaningfulness — of the syllables increases the greater and greater is the proportion of those syllables which also occur as component part of the English lan-

TABLE I

SCALED MEANINGFULNESS OF WORDS AND FREQUENCY OF OCCURRENCE IN THE ENGLISH LANGUAGE

The 60 words are from Noble (3); they are given in order of meaningfulness. The T-L column indicates the frequency of occurrence of that word in the Thorndike-Lorge count (14). AA is most frequent, such words occurring more than 100 times per million words. "A" words are those that occur from 50 to 100 times per million. A number refers to the actual frequency per million. A dash indicates that the word does not occur in the 20,000 most frequent words.

Word	*T-L*	*Word*	*T-L*	*Word*	*T-L*
1. kitchen	AA	21. region	A	41. argon	—
2. army	AA	22. quarter	AA	42. sequence	6
3. money	AA	23. leader	AA	43. pallor	2
4. dinner	AA	24. mallet	3	44. tankard	1
5. wagon	A	25. kennel	6	45. bodice	2
6. office	AA	26. keeper	23	46. vertex	—
7. heaven	AA	27. fatigue	19	47. rostrum	—
8. jelly	19	28. unit	29	48. ovum	—
9. jewel	41	29. effort	AA	49. tartan	1
10. insect	40	30. quarry	11	50. endive	—
11. village	AA	31. quota	3	51. jetsam	—
12. garment	40	32. yeomen	11	52. lichens	7
13. zebra	2	33. zenith	4	53. percept	—
14. captain	AA	34. ordeal	5	54. capstan	—
15. typhoon	—	35. pigment	4	55. lemur	—
16. youngster	21	36. naptha	1	56. nimbus	—
17. uncle	AA	37. pallet	2	57. carom	—
18. income	46	38. entrant	—	58. flotsam	—
19. zero	11	39. jitney	—	59. grapnel	—
20. hunger	37	40. rampart	4	60. stoma	—

guage. At low association values practically none of the syllables is found in our language; at the high association values a large majority is found. The mean frequency with which the items occur is also directly related to the association value. That is to say, not only is it more likely that a high-association value syllable occurs in our language than a low-association syllable, but it will occur with greater frequency than a low-association syllable when it does occur. This relationship is shown in Fig. 2.

Such evidence is taken to mean that there is a high correlation between frequency of exposure of verbal units and their rated meaningfulness. Such a correlation does not mean, of course, that frequency differences cause the meaningfulness differences. But it is a perfectly good *hypothesis* to hold; that is, it is quite legitimate to postulate that meaningfulness is a product of frequency. However, for the argument being developed here, something beyond the hypothesis is needed. What is needed is a test to determine whether controlled

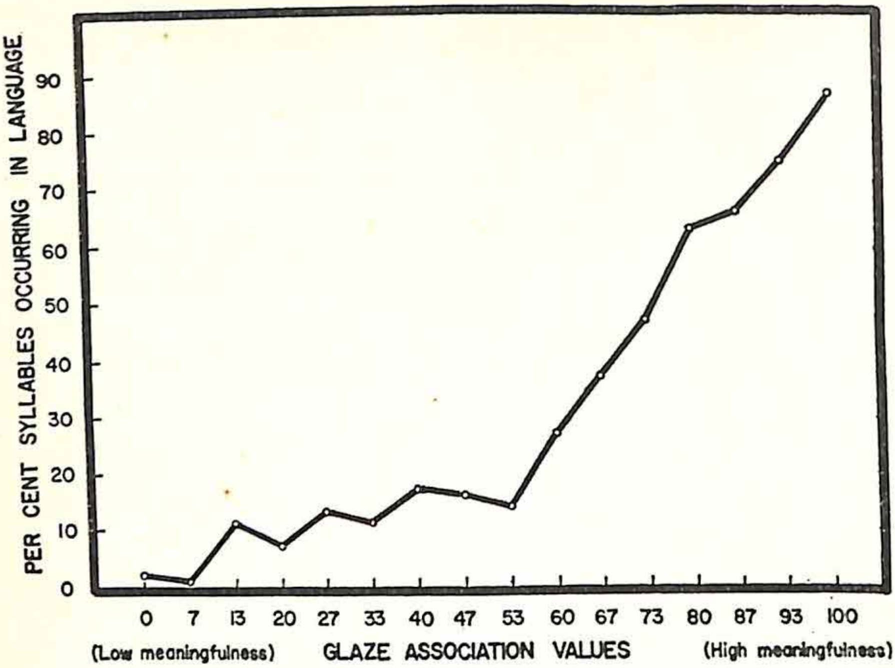

FIGURE 1.

Per cent of nonsense syllables which also occur as "natural" three-letter sequences in the English language as related to association value.

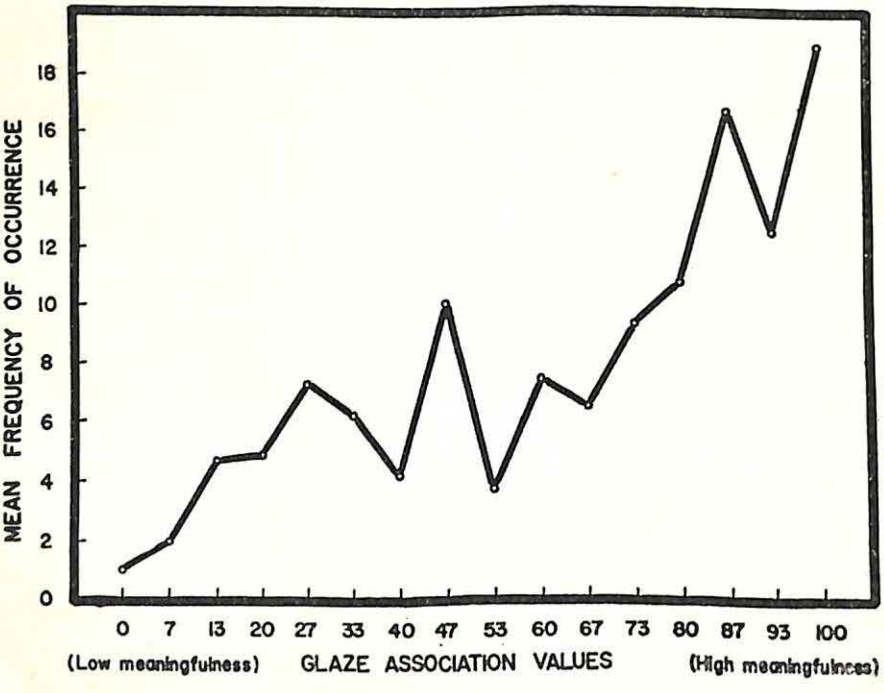

FIGURE 2.

Frequency with which nonsense syllables which are also "natural" three-letter sequences occur in the English language as related to association value. The ordinate indicates mean frequency of occurrence in 15,000 words.

manipulation of frequency results in increased meaningfulness. When such a test was made the results were positive. Noble presented his subjects with items of known meaningfulness and asked them merely to pronounce them; the subjects did not learn the units as a response to any particular stimulus. He showed that familiarity increased directly as a function of frequency of presentation (6) and that rate of learning increased directly as a function of such induced familiarity (7). Thus, such data would strongly support the hypothesis that frequency underlies what is commonly called meaningfulness. Actually, on this matter of laboratory manipulation of frequency the data are not completely in agreement, a study by Waters (15) being a clear negative case. However, Noble's work (as well as others not cited) is positive so that it does not seem out of line to proceed as if frequency can underlie meaningfulness.

In 1932 Robinson made the observation that: ". . . the act of reading or reciting a given syllable may, irrespective of its associative connections, influence the facility with which that act enters into new associations" (9 p. 118). The above data would support this observation; it now remains to ask by what mechanism or process does this facilitation occur. An hypothesis and some supporting evidence will be offered as an answer to the question.

How Frequency Operates

The hypothesis is that verbal units are organized in hierarchical structure according to the frequency with which they have been perceived in the past. The word "perceived" is used without specifying exactly what is meant. It may be necessary that the subject actively say or respond to the unit, but it may only be that he has to perceive it in the sense that he could, if asked, immediately say what he had seen. Even the latter may not be necessary. While this issue will have to be resolved, it cannot be so resolved at the present time. This hypothesized organization of responses is a functional one; the more frequently the input for a given unit, the earlier the output under appropriate stimulating conditions. The appropriate stimulating conditions are usually verbal instructions or inferred instructions which indicate that a class of responses is appropriate for a given task. Within those strictures the response to "come out" first or be thought of first will be the one that has occurred most frequently.

There is considerable evidence for this relationship between frequency of input and order of output. Some of this will be mentioned.

1. As is generally conceded now, visual and auditory recognition thresholds are related to the frequency of use of the word whose threshold is being measured (10). The more frequent the word, the lower is the threshold.

2. If subjects are asked to name all the animals they can, the names which occur first and are given most frequently, all subjects considered, are those which occur most frequently in the printed language and probably also occur most frequently in real-life situations. Or, if a subject is asked to give male first names, the names given first and most frequently are those which occur most

frequently in the English language. These and other determinations can be made from data available in a study by Bousfield, Cohen, and Whitmarsh (1).

3. Howes (3) has shown that frequency of free-association responses and frequency of occurrence of these words in the English language are directly related. The probability of eliciting a response in the context of free association is the same as its probability of occurrence in written discourse.

This relationship between frequency and availability may be important, not only because it may facilitate simple verbal learning, but also because it may be fundamental in the higher thought processes. In problem solving situations it is also very likely that those facts or principles which occur first in solution-attempts are those which have the highest frequency of input. This is mentioned only to indicate that the principle is probably not restricted to simple verbal learning.

FREQUENCY AND VERBAL LEARNING

Frequency is important in verbal learning simply because the most frequent response is most readily available and can therefore be more quickly attached to a new stimulus. Thus, frequency is perhaps the single critical variable for the first or recall stage of learning. This hypothesis says nothing about the importance of frequency in the second, or hook-up stage. It may be that mere frequency of contiguous presentation of the two items in a paired-associate list during a laboratory period will also be shown to be critical; but, it was this frequency which Thorndike held to be almost valueless unless accompanied by reward or belonging.

One implication of the this frequency hypothesis is that in a paired-associate list the meaningfulness of the *stimulus* is apt to be relatively unimportant. The experimental facts support this implication to the extent of showing that meaningfulness difference in the response member of paired-assoicate pairs produces a much greater effect on learning than the same difference in meaningfulness of the stimuli. It is interesting to note that George Stoddard clearly showed this fact in a classroom experiment in 1929 using French and English equivalents as his paired-associate material (12). The implication of this study has been almost ignored in psychological writings. Stoddard's findings have been confirmed in recent years in the more standard laboratory setting (*e.g.*, Sheffield, [11], Noble & Stockwell, [8]).

SUMMARY

The role which frequency plays in verbal learning has been discussed. It has been discussed as an *illustration* of how laboratory studies in verbal learning might contribute to an understanding of learning in the schools. It is quite obvious that the present writer believes that the importance of frequency *per se* has been underestimated. But this is not the critical point of the present paper. The critical point is that it does seem possible to analyze the implication of a laboratory variable and to show how it might be relevant to the school situation. It would probably be possible to carry out similar analyses of other variables which have been shown to be of considerable importance for verbal learning in the laboratory. Analyses such as the one made here could do no worse than indicate a few representative experiments to be done in the classroom to determine the degree to which the laboratory principles could be generalized. Such an empirical tie seems nearly mandatory for sound but efficient application of laboratory principles to the real-life situation.

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Proposed Reforms in French Secondary Education

JASPER J. VALENTI

In his present paper, Dr. Valenti gives a description and analysis of the conflicts arising from the efforts to reform the French educational system. Such an analysis perhaps has special current value in view of renewed American interest in traditional European education.

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For the seventh time since 1944 a bill proposing a reform of French education has appeared in the French legislature. And for the first time it was reported out of committee and succeeded in reaching the floor of the assembly for debate in July 1957. The *Projet de Reform* formulated by M. René-Billères, Minister of National Education, is not merely a purported improvement in education; it envisages a profound transformation in French education. In fact, it is a revolution with emphasis on social equalization and welfare state methods. Its target is to limit the importance of the *lycée,* the academic school *par excellence,* by reducing it from seven years to five years and by substituting for these first two years an intermediary stage, or common base, with a common curriculum for all children between eleven and twelve followed by a year of "observation" permitting students some option in choice of studies.

The proposal has created considerable ferment in French political circles. Its proponents see in it an opportunity to remove social barriers which they attribute to the selective character of the *lycée* and to allow French education to respond more imaginatively to the demand of modern science and technology. As Sputnik I enlivened the zeal of critics of American education, so, in their way, the French reformers have been motivated to strike, as debacles in Vietnam, Algeria, the rapid turnover of governments, the resurgent economic threat of West Germany, and finally the Suez fiasco have jolted Frenchmen out of complacency. On the other hand the critics of the reform have been equally vigorous. They have branded it a threat to the well-established educational aim of producing cultivated citizens in the humanistic tradition. Parents' associations have expressed disapproval at what they consider to be further state encroachment on family prerogatives in education.

In order to grasp the climate surrounding the present debate, one must understand the system of French education at the secondary level and appreciate the fondness many Frenchmen hold for its academic tradition. In the same way one must realize the contemporary social and economic complexities which have led to the various demands for educational reform.

The pursuit of general culture has remained for centuries the ideal of French secondary education, the essence of this ideal is aptly described by Yale's Henri Peyre.

> To the French, the mark of a well-educated man is his ability to be interested in a variety of subjects, especially the arts and letters, philosophy, history and general science. His aim is to understand 'himself and the world', to analyze, to reduce a problem lucidly to its essential data; then, very often, to fancy that he has thus solved it because he has posed it neatly. *'Poser la question, c'est la répondre'* is, next to *'Faisons la lumière,'* the favorite cliché of French conversations. Such an ideal is pursued through intense study of a few chosen texts of French and of Latin literature, through mathematics, history (often oriented toward philosophy of history), and through a steady habit of psychological introspection (11, p. 87).

The system of education has been organized with the humanistic ideal in mind. Education is compulsory from six to fourteen. After five elementary years (starting at six years of age French students attend classes numbered in reverse order from eleven to seven), the student must take an examination — *examen d'entrée en sixième* — which serves as a means of selection for education of the second degree. Successful students enter the traditional secondary establishments *(lycées* and *collèges)*. Others remain in the primary school, some of them with the intention of going on to an apprenticeship center when they are thirteen. Still others remain in the primary school and go into the *"classes de cours complémentaire."* The complementary classes are always attached to a primary school and offer a short course of study in comparison with the long courses in the *lycées* and *collèges*. During the four year program of this "short course," the syllabuses are similar in the main to the corresponding classes of the secondary system. Nevertheless, it has its own objectives and in practice it differs markedly in spirit and method from the courses in the secondary system. There is less emphasis on foreign language, and some complementary classes have developed technical, commercial, home economics, and agricultural sections together with their general education. These classes are not strictly terminal institutions since some students may be allowed to pass into the second cycle of the *"lycées"* or *"collèges"* or into teacher training schools.

The secondary school system of France is made up of *lycées* which are entirely financed by the central government, *collèges* which are financed largely by municipalities, and the private secondary schools, or *"établissements libres."* About one in every six French youths goes into secondary education — and nearly fifty per cent of those in school attendance between the ages eleven and eighteen are in parochial schools and are subject to the same curricula and examinations as public school pupils. Secondary education covers a period of seven years and it ends with the *baccalauréat* examination. For pupils desiring to enter special state engineering and military institutes, it may even be extended two or three years.

Secondary education is gradually differentiated as pupils go through school. There is a common core of major subjects — French, history, geography, mathematics, natural sciences, and in later years physics and chemistry. In the last years four main groups of subjects are available: three of them classical (with Latin), and one modern (without Latin). In classical group "A", Greek and a modern language are also taught; in group "B", two modern languages are taught in addition to Latin. The approach in groups "A" and "B" is preponderantly literary. Group "C" provides Latin and extensive study in mathematics and physical sciences. In the modern group two modern languages are taught in addition to the scientific syllabus of Group "C". An additional group, "M" has been added within the last decade specializing in biological sciences. It is taken by pupils entering from the complementary classes who have had only one modern language.

At the end of the first class (after six years of secondary education), the student comes up for Part I of the *baccalauréat*. The examinations are conducted by a jury of *lycée* and university professors in a series of three or four 3-hour written examinations given at university centers. Oral sessions follow a few days later and are composed of six to eight interrogations of twenty minutes each. If the student passes his exams successfully, he returns to school in the *"classe terminale,"* where his real concentration begins either in philosophy, experimental science, or mathematics. In the philosophy section at least a third of his time is spent on philosophy. The *"sciences expérimentales"* include philosophy, mathematics to a less advanced standard, and physical and biological sciences to an advanced standard. The section, *"mathématiques"* gives advanced training in mathematics. At the end of the terminal class, the student takes the second part of the *baccalauréat,* which consists of written and oral tests in philosophy, as well as in his special field, and in general subjects. The *baccalauréat* is relatively difficult — only 55 per cent of the candidates for the first part and 60 per cent of the candidates for the second part are normally passed.

The season of the *"bachot"* is full of tension for the French teenager and his family. Commenting on the French examination a Paris correspondent of the *London Times* stated (February 11, 1954):

> Public examinations sometimes seem to be regarded as an end in themselves, the more so since the different diplomas and *baccalauréats* are nowadays almost automatically required as a condition of entry into different employments. The schoolboy's life thus becomes a steeplechase from one examination to the next, and there is a constant temptation to resort to techniques for 'scraping through' which, though effective, may bear little resemblance to serious study.

Observations of this kind are not uncommon. They indicate, of course, that the aims at the highest scholarly standards are not, in fact, well served. The severity of this system of competition has been well recognized by M. Peyre:

> At every step in French education, the pupils must meet, and jump over, hurdles. The strain is great, probably excessive: and reforms

now being proposed will aim at toning down that stress on emulation (11, p. 90).

Instruction in French secondary schools aims at the highest scholarly standards. The lecture and exposition are the dominant methods and in these their professors are hardly equaled, particularly the top 25 per cent of them who have passed the rather selective *agrégation* examination and are men of remarkable culture and intellectual distinction — scholars, researchers, and writers.

The method of instruction is probably best understood in the *explication des textes*[1] for studies in the French language, somewhat reminiscent of the Jesuit *praelectio*. This is essentially a detailed analysis of outstanding literary passages in which an exacting study is made of vocabulary, diction, sentence structure, paragraph meaning, and written expression. It is also a point of departure for instruction in literary composition, creative writing, literary criticism, and logic.

Large amounts of notetaking accompany French instruction, and much homework is exacted of the French student. Extra-curricular activities take up very little or none of his time. Discipline is demanded, particularly in the *établissements libres*. Competition and severe grading are the essences of the French system. Observers of French education quickly recognize that students in the *lycée* and *collège* express themselves both orally and in writing with a lucidity and critical facility that American high school students rarely match.

Nevertheless, there have been many proposals for reform. Ever since World War I there has been some agitation for an *école unique* — a form of comprehensive school with common courses for all students regardless of ability.

The last attempt before the outbreak of World War II to give legal expression to the *école unique* was the Jean Zay Plan. The Chamber of Deputies destroyed it by permitting legislation on only parts of it. The focal point of the plan was to set up an orientation period of one year at the beginning of the second degree. (Orientation or observation classes are opportunities for teachers and psychologists to observe students as they learn under progressive activity methods in a program of studies that is not centered on the classics. During this period, pupils' aptitudes can be discovered so that they may be guided to a suitable selection of courses without the necessity of a severe admissions examination.)

At the end of the war, the provisional government of North Africa set up an educational reform commission which considered several plans and suggestions, including a plan proposed by the Communist Party and suggestions based on the British Education Act of 1944. The commission made a few radical proposals, such as abolishing all state examinations except the *baccalauréat* and making it easier for elementary school teachers to teach in the school of the second degree. Otherwise the commission was generally conservative.

It was in the Langevin Plan that the reformers embodied the most sweeping and revolutionary measures for the revision of French education. Under the leadership of physicist Paul Langevin and Professor Henri Wallon of the *Collège de France,* the *Commission Ministeriélle d'Etude* submitted its report in 1947 calling for (a) the raising of the compulsory education limit from fourteen to eighteen; (b) extending free education to include the university level, supplemented by a system of student maintenance grants; (c) organizing of elementary and secondary education into the first degree with higher education as the second degree; (d) abolishing of the entrance examination for the sixth class and all other state examinations except the terminal examinations and substituting for them an evaluation by teachers based on a study of cumulative records of pupils and the observations of psychologists; (e) setting up of a "period of orientation" and observation for all students from eleven to fifteen based on exploratory general courses taught with the use of so called "activity" methods and assisted with information provided by guidance specialists; (f) allowing some subject matter concentration at age thirteen but providing for greater concentration in a "period of determination" from fifteen to eighteen; (g) modifying of teacher training to develop a student-centered attitude particularly on the part of prospective secondary teachers.

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[1] This is well illustrated in the *exercises d'application* in the French Course of study in the Fifth Class (10, p. 16).

The commission's report was shelved with the break up of the coalition of popular republicans, communists, and socialists in 1947. Complicating the picture was the factor that both Professors Langevin and Wallon were well known for their Marxist sympathies. Nevertheless, proposals for reform since that time, including the present Billères Bill, have been undertaken in the spirit of the Langevin report. The Delbos Bill of 1949, based on a study of the Langevin Plan was a middle of the road attempt to bring about changes — but it satisfied neither the liberal nor the conservative proponents of educational reform.

What was the public reaction to the reform proposal? The conservative press — *Le Monde, Le Figaro, Le Pays, L'Aube, La France Catholique* — was generally uninspired by them or opposed. Major attacks on the Langevin Plan were based on economic objections, parental objections, and fears that the proposals were detrimental to intellectual standards.

On economic lines the Langevin proposal was mainly criticized for its extravagance. Raising the compulsory education age to eighteen, it was feared, would entail expenditures far beyond the Fourth Republic's economic resources. Of major concern was the certain aggravation of an already burdensome shortage of classrooms and buildings. Secondly, the cost of hiring teachers to meet the instructional needs of increased enrollments was felt to exceed the Treasury's ability. The provisions in the proposal for "activity" teaching and guidance services would have sent costs soaring. A very real problem, which the proposal did not face, was the reduction in the labor force needed to restore France's productive capacity.

Parents of pupils attending the secondary schools both public and private were generally critical. Although parent-teacher associations of the American variety are non-existent in France, the voice of organized parental opinion is a force to be reckoned with. Many middle class parents have looked upon the secondary school as both a conservative and progressive institution; — conservative inasmuch as it transmitted the cultural heritage, and progressive inasmuch as it was a force for the social mobility of their children to positions in the civil service and the professions. The Langevin proposals were seen as a threat to their desires. They opposed the postponing of classical studies from age eleven to age thirteen. The *Fédération des Associations de Parents* in its organ, *La Voix des Parents* brought forth the charge of statist encroachment against the reform measure when it held that giving consideration to psychologists during the orientation period interfered with parental prerogatives. The leftist leanings of the proponents of the bill were also scored since Professors Langevin and Wallon were both known, as already noted, for their Marxist sympathies.

Fears for the watering down of intellectual standards also took their toll. The orientation period apparently would cause the postponement of academic specialization and shorten the time in secondary education devoted to intellectual discipline. The classicists also attacked the activity methods which the Langevin proposal encouraged and the professional and guidance training which they felt would encumber the work of secondary teachers. The monthly bulletin, *L'Aggrégation* of the *Société des Agrégés de l'Université* steadfastly attacked the reforms. It considered them a serious obstacle to the maintenance of high cultural and intellectual standards particularly inasmuch as the period of observation would serve only to hold back the intellectually elite for the advantage of the mediocre students.

Catholic opinion was divided. On the one hånd, the omission of parochial education in the Langevin Plan was denounced. Because of the strong influence of state practices on private education, fears for the reduction in academic standards were expressed. Not of the least concern was the probable increase in instructional and operational expenditures to provide guidance and testing services. On the other hand, the proposal received strong support from Catholic educationists and social egalitarians. Some accepted the proposals with cautions. Jean Rimaud writing in the Catholic literary review, *Etudes,* noted the need for reform in teaching methods and for the accommodation of education to cultural differences but was especially concerned over the inevitable lowering of intellectual standards and the undue emphasis on the technical and the vocational. Major support for the proposals, however, came from pro-communist educational groups, the anti-clerical *Ligue Francaise de l'Enseignement,* advocates of vocational education, and the pro-communist journal, *L'Humanité.*

The agitation was renewed last year by the most recent proposed law, that of M. Billères. The law would: (a) raise the age of compulsory attendance to sixteen (probably the least controversial measure); (b) ease the cost to parents of public education by making it free of charge at all levels, creating a new system of scholarships, greatly increasing grants to children of poor families, creating state-aided restaurants and lodgings for students and reimbursing them as far as possible for school supplies; (c) organize permanent continuation courses and other adult educational and social activities; (d) establish an intermediary stage of education for all pupils between the ages of eleven and thirteen (somewhat similar to that stage recommended in previous plans). The two year intermediary stage (the measure most under fire by opponents of the proposition) would consist of a year of "observation" in the following subjects: foreign language, natural and physical science, elementary algebra, mechanics, geometry, manual training, art, music, and basic social science. The second year would allow students some electives, including Latin, theoretical science, and mechanics. Class size would be limited to twenty-five. When the student reaches the age of thirteen, his parents would be called upon to confer with teachers, doctors, and psychologists over his school record and decide the next step. Three types of schools would be available: (a) *écoles terminales* — general studies and vocational training for three years; (b) *collèges* — short programs of general and technical studies for three to five years; (c) *lycées* — for five years.

The reformers have compiled an imposing barrage of statistics to substantiate their thesis that secondary education has been dominated by a bourgeois mentality. The working classes represent sixty-eight per cent of the population yet they make up only nine per cent of the university students. This inequality, the reformers maintain, cannot be broken merely by a system of scholarships. A drastic revision in the selective practices of the university preparatory institutions is long overdue. Listing figures of the *Institute National d'Etudes Démographiques* (*I.N.E.D.*) published in various issues of the review, *Population* (5), they argue: The sixth classes enrolled thirteen per cent of the children of agricultural workers, sixteen per cent of the farmers' children, twenty-one per cent of the industrial workers' children, thirty-nine per cent of the tradesmen's children, forty-three per cent employees' and foremen's, sixty-seven per cent industrialists', eighty-six per cent higher officials', and eighty-seven per cent of the children of members of learned professions. Furthermore, of those enrolled in the sixth class, fifty-five per cent were in *lycées*. Only eight per cent of working class children were in *lycées* but these groups made up the bulk of the enrollment in the complementary classes. Theoretically, they may later transfer to *lycées* but very few, in fact, do. The revisionists fear also that the working class children who do manage to survive the selective system, eventually are swallowed up by the social bureaucracy, thereby helping the system to perpetuate itself. In addition to academic and social factors, economic and geographic barriers make for increased selectivity because of rising incidental costs of schooling and shortage of building facilities in many areas.

The reformers' argument continues that the present system is not only discriminatory, but it results in a tragic waste of human talent. While the twentieth century demands more administrators, teachers, research workers, and technicians, France lags behind in the shadow of the nineteenth century. They maintain that France's increasing birth rate and rising population indicate the talent is available, but that eleven is too early an age to discern talent. In fact, many poor scholastic choices are being made. For example, fifty-one per cent of the students in 1948 selected the classical course but only twenty-seven per cent continued the study of Latin to the baccalaureate level.

The reformers further maintain that France is not making the best use of intellectual resources in the transition from an agricultural to an industrial economy. Comparison with her western sisters corroborated this. For example, in 1955, she graduated only 41,400 *bachelieurs.* (Six per cent of those in the nineteen to twenty-one age group, while the United States graduated eighteen and eight tenths per cent. At that, less than a third of these were in sound scientific training.) This inappropriate distribution is evidenced in University enrollments where more than half are in letters and law and only twenty to twenty-five per cent in the sciences. The UNESCO figures for higher education show that France had 365 students per 100,000 population while figures for other nations were: USSR, 697; USA, 1783; Canada, 642; Bulgaria, 401; Yugoslavia, 374; Czechoslovakia, 608; Japan, 500. There is a serious insufficiency of engineers and technicians, yet in 1954, only ninety engineers in France were trained for every million inhabitants. For other nations there were: Switzerland, 155; Canada, 214; Italy, 114; U.K., 234; USA, 195; USSR, 236.

These arguments brought support for the proposals from the Commission for National Education and various teachers' unions. *Le Syndicat Général de l'Education Nationale* was strongly in favor of the proposals. *Le Syndicat Nationale des Lycées et Collèges* was in favor of the proposals but suggested a longer secondary education. *Le Syndicat National de l'Enseignement Secondaire* did not take a definite stand. While it accepts the common base it prefers to reduce it to one year. Roger Gal, writing in *Cahiers pédagogiques* sums up the attitudes of many educationists, "Society must place at the disposal of individuals and families all the material, economic, and financial means so that the child may undertake the studies of which he is capable. It is evident that, without serious economic, social, and political reforms no reform of education may be more than half a measure" (6).

Against the Billères proposal have been arrayed parents' association of *lycée* students, Catholics who are alarmed at the prospect of more state control and those opposed to the exclusion of parochial education from benefits, and many who fear the cost of implementation will greatly exceed the estimate. But even greater resistance has been caused by the fear of intellectual downgrading. Professor Pierre Bennezon, President of the *Société des Agrégés* has stated, "The present plan wants to sacrifice two irreplaceable years between eleven and thirteen when the mind is most supple and malleable for the acquisition of intellectual discipline and of a taste for analysis" (1).

The bill was debated in the assembly in July 1957. Mme. Lempereur, a Socialist, spoke in favor of the guidance program and the common base. The other Socialist deputies declared themselves in favor of reform. The Communists favor the common base, all efforts at the democratization of education, and the separation of church and state. The Popular Republican deputies supported the features of the bill providing for the caring of individual needs in education but deplored the fact that the present bill did not extend these to elementary education. These deputies discussed the idea of vocational education and proposed that the reforms be tried out in some governmental districts first. M. Hyppolyte Ducos, a Radical Socialist who presented the reform to the assembly declared himself in favor of practically all the elements of the bill except the common base.

Further debate in 1958 failed to materialize. Once again reform has been averted. This time a major governmental crisis, the fall of the French Fourth Republic has caused the reform to be averted. But, discussions have gone on even in the absence of elected deputies. The reform of education was the object of a meeting of an inter-ministerial council under the Presidency of General de Gaulle. The project was presented last August by M. Berthoin, present Minister of National Education. M. Berthoin had set up the project in 1955 and it had been followed in its main lines by M. Billères.

The plan which Berthoin presented to the cabinet hardly differs from the Billères proposal discussed above. It calls for the prolongation of compulsory education to sixteen and the creation of a two year orientation period. The compulsory education would be applied to children starting school in 1959 and who would be fourteen in 1967. The outcome of this plan is uncertain. Even devotees of classical humanism remark that all is not well with secondary education. Peyre, writing in *Current History* ponders, "and with all its virtues that secondary education has failed to develop in the French people some of the gifts which they needed in the last fifty years; boldness in effecting their industrial revolution, political sense for compromise and for grasping the lesson of events in Europe or in the French union, flexibility, imaginative grasp of the future and civic abnegation in the ruling classes" (11). Sorbonne Professor Marrou suggests that if we want to avoid a new barbarism, our humanistic culture must come to terms with science, technology, and the modern trend of social organization which they seem to require.

The reformers are confident that if the present plan should fail, another one will soon be unfolded, formulated, undoubtedly, according to the principles of the Langevin and Billères proposals. But the typical Frenchman is likely to advise, in the words of M. Peyre, "Never run after a bus, a woman, or an educational theory, there will be another one along very soon".

NOTE

As this article was being prepared for the press, the Council of Ministers of the De Gaulle government adopted the reforms proposed by M. Billères and M. Berthoin bringing about a new epoch in French Education.

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The 'Impossibility' of Neutrality

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He argues: The dispute about neutrality "is essentially a verbal dispute. . . . The main purpose of this paper is to take our minds off the argument over the impossibility of neutrality . . . and to . . . clear the air for an intelligent appraisal of . . . the real problem: What stand, *if any,* should the schools take on social questions?"

Discussions about the proper role of the school often contain the claim that it is impossible for the schools to be neutral. John Dewey has taken this position:

> What they are really doing when they deny directive social effect to education is to express their opposition to some of the directions social change is actually taking. . . . It is not whether the schools shall or shall not influence the course of social life, but in what direction they shall do so and how. . . . That the schools can be completely neutral . . . sets up an end incapable of accomplishment (3, pp. 236-37).

Even Boyd Bode accepted the view that neutrality is impossible:

> Since the transmission of racial and national heritage inevitably calls for interpretation, it seems reasonably obvious that there are and can be no neutrals in education. Perhaps the most unedifying spectacle in present-day education is the persistent and fatuous attempt to avoid the whole issue by a specious claim of neutrality (1, p. 14).

The Committee on Religion and Education of the American Council on Education held a comparable position in the area of religion:

> It is a grave mistake to suppose that the public school, holding as it does in so large part the power to determine the scope of intelligent interest and concern on the part of youth, can be neutral in this matter. The failure to play a part in acquainting the young with the role of religion in the culture while at the same time accepting such responsibility with reference to other phases of the culture is to be unneutral — to weight the scales against any concern with religion (2, p. 148).

Smith, Stanley, and Shores reveal a similar view in a popular curriculum text:

> The content of the curriculum, regardless of how it is selected, educates either for the *status quo* or for changes in it; and the curriculum

> worker would be on more defensible grounds if he accepted this fact and frankly took a stand for, or against, a carefully analyzed and consistent view of social reconstruction (5, p. 295).

Each of these claims of the impossibility of neutrality appears in the context of an argument designed to get the schools to push for a particular goal. Dewey wants the schools to support the "newer forces;" Bode, democracy; the Committee, religious faith; and Smith, Stanley, and Shores, social reconstruction. The general form of the arguments is as follows: "Neutrality is impossible. Therefore the schools had better be sure that the stand they are taking is the right one." This argument, together with an argument for some stand, results in the conclusion that the *schools* should take that stand.

This paper is designed to show that in the context of the above argument, the claim, "Neutrality is impossible," is either false or useless, depending on the sense in which the claim is intended. It will be argued that in the ordinary sense of "neutrality" the claim is simply false. But since the word "neutrality" is sometimes used in another sense, the claim will be considered in that sense and will be found to be either useless or false.

I.

First let us distinguish between public and private neutrality. A basketball referee might privately root for team A, yet he might inhibit this feeling and be publicly neutral in making his decisions in the ball game between team A and team B. In this paper, the subject is public neutrality, since we are not concerned with whether it is possible for a person *not to have feelings* about the *status quo* or any other issue.

Granting our concern only for public neutrality we will now argue that a plausible account of "neutrality" and its opposite, "taking a stand," leads to the conclusion that the use of each of these expressions presupposes intent on the part of the subject. In other words a person is not accidentally neutral, nor does he accidentally take a stand.

Consider this situation: John and Jane are the two leading contenders for the ninth-grade class presidency. Two days before the election, Mrs. Brown, the civics teacher, tells the class that men are generally more respected as community leaders than women, and as a result several votes move to John's side. Jane's father comes to the principal and claims that Mrs. Brown failed to be neutral in the election, or, to say the same thing, that she has taken a stand. There are several defenses which, if established, would defeat the father's claim:

1. Mrs. Brown did not even know about the election. Thus she could have had no intent about the matter and cannot be considered to have taken a stand.

2. Mrs. Brown knew about the election, but did not realize that what she said would help John's election. She has not intended the effects of her act on this issue and thus has not here taken a stand. The evidence for non-neutrality is insufficient, because she was ignorant.

3. Mrs. Brown knew about the election and realized that what she said would help John, but she felt obligated to say it anyway, since a student had asked her in the civics class whether women or men have in the past been more respected as community leaders. The important thing is that she did not say what she said *in order to* help John. She said it, *realizing* that, and in spite of the fact that, John would be helped. Her *intent* was not to help John, but to do what she considered her job — namely to give the student a true answer to his question.

Mrs. Brown might have dropped the matter at that point, feeling that other matters of greater consequence should be considered by the class. Or she might have had second thoughts and, going further, pointed out what she believes to be another significant piece of information that she has to offer in connection with the coming election: "In the past, girls have usually been more efficient presidents than boys." She would have done this *in order to* avoid helping either side; that is, she intended to avoid helping either side.

In both of these last-mentioned alternatives she was not taking a stand, since the intent to help was lacking in both. In the first, however, where she dropped the topic immediately, she was, let us say, a-neutral, since she had no *intent* either to help or not to help. In the second, where she spoke of efficiency, she can be usually best descirbed as neutral, since she *intended* to avoid helping either side and acted accordingly.

In looking over Mrs. Brown's defenses, we find that showing absence of intent to help is enough to defeat the father's claim that she is taking a stand, even though she might actually have caused the swinging of votes.

Three types of defenses were considered, ignorance of the issue, ignorance of the effects of actions, and simply the lack of intent to help even though knowledge of the above two is present. We have not of course defended her against some other accusations. The first defense, if true, leaves her open to the accusation that she is not doing her job as a civics teacher if she does not know about the approaching class election. The second defense leaves her open to the accusation that she is a poor teacher if she does not realize the effect of her statements. The first aspect of the third defense leaves her open to the accusation, which might or might not be legitimate depending on how pressing were other responsibilities, that she should not have dropped the matter, since this is a significant issue within her area of responsibility. The second aspect of the third defense would probably not open her to further criticism since we usually do want teachers to be neutral in school elections.

Consider this similar situation: John and Jane are the two leading contenders for the ninth grade class presidency. Throughout the campaign, Mrs. Gamma, the popular mathematics teacher, teaches textbook lessons in algebra, never mentioning the election. John's father comes in and complains to the principal that Mrs. Gamma is failing to be neutral since it is clear that most students favor Jane over his son, John, and since Mrs. Gamma, being a powerful figure, could influence votes toward John by announcing that she thinks he ought to be president. There are several defenses which, if established, would defeat the father's claim:

1. Mrs. Gamma does not know about the election. Thus she cannot be said to have intended to help Jane by failing to come out for John. She has not taken a stand.

2. Mrs. Gamma does know about the election, but it never occurred to her to connect her behavior in algebra with the outcome of the election. She cannot be said to have taken a stand or to be neutral in her algebra class. She is a-neutral.

3. Mrs. Gamma knows about the election, and knowing that she is influential with the students, has deliberately avoided all reference to the election and has scrupulously given equal amounts of recognition to the two contenders. She has intended to avoid causing either side to be advanced and can be called neutral.

4. The most likely defense to be employed by the principal is that Mrs. Gamma is not doing anything but her job — teaching algebra. The irate father might then claim that it is also her job to push for the election of his son. And we have arrived at the real issue: Should Mrs. Gamma (or the entire school system) push for the election of John? This is a case to be settled on its merits, and not by using the neutrality gambit.

Four types of defenses were considered. The first three showed that it was not Mrs. Gamma's intent to help John. The fourth shifted the issue to its real focus: Is it the job of the schools to push for John's election?

So far an attempt has been made to present a plausible but limited account of the ordinary use of the word "neutral" and its opposite. It was a limited account because we were talking about overt actions rather than inhibited feelings. That is, we were talking about public neutrality rather than private neutrality.

Accepting, for the time being anyway, the proposed account, look again at the original argument. "Neutrality is impossible. Therefore the schools had better be sure that the stand they are taking is the right one." Here the sentence, "Neutrality is impossible," apparently means, "The schools are necessarily taking a stand already." Granting the previous analysis, this means that the schools are necessarily intending to help one side or the other on every social issue. Let us agree that there are some social issues such that most schools are intentionally acting in a way that furthers one side. Examples of such issues are: Should the United States Government be a democracy or a dictatorship? Should differences among citizens be settled by physical power or by rules and discussion? But many schools are not *intentionally* helping or hindering a counter-cyclical fiscal policy, socialized medicine, or private power. Since these schools are not already taking a stand (intending to help or hinder) on these issues, it does not make sense to recommend that they be sure that the stand they are already taking is the right one. Examples of real issues here are: Should the schools support socialized medicine? Or should the schools oppose it? Or should they avoid intentionally helping one side or the other? To say that the schools necessarily are already intentionally helping one side or the other is to muddy the water with a false statement.

II.

The two crucial parts of the analysis so far are (a) the claim that "taking a stand" and "neutrality" presuppose intent in their ordinary use and (b) the assumption that these terms are being used in the ordinary way in the arguments considered.

Either or both of these crucial parts of the analysis might be denied in favor of the interpretation that when we say "Neutrality for a given subject is impossible," we are saying "The subject is necessarily helping one side or the other, regardless of the subject's intent." Instead of arguing further against this interpretation, let us accept it and see where it leads. In order to avoid confusing ourselves with mention of "neutrality," the meaning of which is now in dispute, let us use the phrase, "The state of not helping either side," in its place. The argument then takes the following shape: "The schools necessarily help one side or the other on all social issues. Therefore the schools should be sure that the help that they are giving is for the right side."

Let us distinguish between two senses of "helping one side or the other." In the first sense, which shall be called the *non-discriminating* sense, the phrase fits every conceivable act or set of acts with respect to any conceivable issue. In this sense, Mrs. Gamma, the mathematics teacher, and the school system were helping Jane or John by not speaking up. And she and the school system were also helping one side or the other in the monogamy-*vs*-polygamy dispute, although this controversy may never be mentioned in her class or in any class. In this sense it is impossible to avoid helping one side or another in each and every dispute. This sense is not found in ordinary use. It appears to be used only in arguments of the type under consideration.

In the other sense, there are conceivable acts about which it is appropriate to say that these acts do not help either side of some issue. Let us call this the *discriminating* sense of "help" since it does not fit some situations but does fit others. In this sense it is appropriate to say that Mrs. Gamma did not help either Jane or John, if we are willing to assume that it is not her job to help them. This sense of "help" is the ordinary sense.

1. First we will consider the argument using the non-discriminating sense. In this sense, when it is said that a certain act or set of acts helps one side or another, no information is communicated since this is true of all acts and sets of acts; that is, we would not learn anything more to enable us to distinguish this act from all other acts or sets of acts. Using this sense, consider the recommendation in detail: "The schools should be sure that the help they are giving is for the right side." Taken at face value this recommendation is impossible to carry out. There are an infinite number of issues on which the schools are taking sides. We cannot examine them all, but only a small fraction. Which ones should we choose? It might be said that we should choose the important ones and the ones that the school can do something about. This would be forgetting that the school is already "doing something about" all issues.

The recommendation then boils down to the view that the schools should be sure that on significant issues the side that they are helping is the right side. The trouble with this recommendation is that in many cases, one does not know how to follow it. That is, one does not know which side the schools are helping. In those cases where the schools are deliberately furthering one side or another, then one can tell what it is that should be justified. Furthermore in most cases where we can show different consequences from those that would occur if the schools *did not exist,* then one knows what it is that should be justified. It is the difference in consequences that should be justified. But in those cases where the school is doing nothing, (or presenting both sides with equal emphasis) it is not possible to tell which side is being helped (with one exception, — see below), and thus one does not know what it is that is expected to be justified. Thus when Mrs. Gamma does not mention the election in her class and gives equal recognition to John and Jane, it is hard to tell which one she is supporting. Thus it is hard to know whether she should justify her "implicit support for Jane" or her "implicit support for John."

Harold Hand maintains that " 'doing nothing about it in the schools' is openly, though usually unconsciously, to take sides in favor of whatever happens to be — to support the status quo" (4, p.33). But political conservatives might very well look upon the same "doing nothing about it" as opposition to the *status quo,* since the schools are failing to protect the *status quo* by not condemning "creeping socialism."

The question comes down to one's view about which side if any, the schools *should* be helping. From this view we decide that if the schools are "doing nothing about it" then they are helping the other side, and this is how we tell which kind of help they should justify. (This is the exception mentioned above.) The trouble with this approach is that it assumes an answer to the real issues in the whole debate; for example: "Should the schools support private power?" "Should the schools support public power?" These are the real kinds of problems which the neutrality gambits usually assume to be answered (and at the same time are used in answering). If one assumes that the schools should support private power, then the failure of the schools to condemn the TVA, for example, helps the public power people. If one assumes that the schools should support public power, the failure of the schools to condemn Eisenhower's Hell's Canyon decision helps the private power interests. The word "condemn" is used here to cover the various activities in which a school can engage with the purpose of turning students against something.

But is there another line of reasoning which will tell us which side the schools are taking? The writer can find no satisfactory one, although the following one is often offered: "By doing nothing the schools are helping the stronger side. Therefore they should justify their help for this side." It is not clear, however, why doing nothing is help for the stronger side. Why is it not help for the weaker side? If the schools fail to do anything about democracy (the stronger side in the United States), why is this not help for the weaker side (totalitarianism)? This question is plausibly answered by the assumption that the schools *should* help democracy but not by the one that says the schools help the stronger side by doing nothing; and the answer is that in this case doing nothing *is* help for totalitarianism (the weaker side).

Thus in the non-discriminating sense of the word "helping," the argument gives us a recommendation that we do not know how to follow without first making a decision on the real issue in the matter. Once this real issue is settled, the neutrality gambit becomes unnecessary, since it is intended to be used as one of the moves in settling the issue, but cannot legitimately be used until the issue is settled. Although the claim that neutrality is impossible is true (by definition) in this sense, the recommendation cannot be followed. Hence the claim is useless. Put in other words, in the non-discriminating sense of "help," it is true that the schools help one side or the other on every issue; but, sticking to this sense of "help," we are at a loss to know which side is being helped in cases of inactivity or equal treatment by the schools. There is a day of reckoning for users of non-discriminating terms.

2. Using the discriminating sense of "help," the claim appears to be false; for it would be in just those cases in which the schools are doing nothing or are giving equal treatment that the phrase, "no help," applies, if it is to discriminate. (We can except, of course, the situation in which it is already concluded that the schools should be helping one side or the other.) Mrs. Gamma was not helping Jane and she was not helping John. In the discriminating sense, the claim is false that she was helping one or the other.

A denial of this interpretation leads one to suspect that the one doing the denying is using the non-discriminating sense of "help." In this case the previous analysis of the non-discriminating sense would apply. That is, we are owed an argument showing which side is being helped and why, an argument that does not assume that the schools should help a particular side.

III.

Summary and conclusion. An attempt was made to show that the ordinary use of "neutrality" and its opposite, "taking a stand," presupposes intent. The claim that neutrality is impossible was then determined to be false in the context of the argument considered. An alternative interpretation of neutrality was considered, the use of which does not presuppose intent. A non-discriminating sense and a discriminating sense of the word "help" were considered, and the claim that neutrality is impossible was found to be either useless or false. The essential part of this second analysis is the establishment of the view that in the crucial cases the basic issues must first be settled before one can say that the schools are taking a stand. And it is in arguments attempting to settle the basic issues that the neutrality gambit is used.

Of what importance is this issue about neutrality? The applications of the claim that neutrality is impossible, if the claim were accepted, are very interesting.

1. If the claim (in the intent sense) were accepted, then education would be convicted of *intentionally* helping one side or another on every issue. This is

a much more serious charge than that of accidentally helping, and one that gives the world much greater concern. Educators certainly had better be able to justify that which they do intentionally. It is not here alleged that people actually remind themselves that intent is claimed by the demonstration of non-neutrality or neutrality, but only that the words are strong words because they are properly used only in situations where intent is present.

2. If the claim (intent-sense or not) were accepted, then any accusation that a teacher is taking sides in his approach to a presidential election would lose its force, as would any accusation that a school is taking sides in a religious dispute. These charges would lose their force because they would be necessarily applicable to every school and every teacher, no matter what schools and teachers do. A teacher (or school) who is *justly* accused of taking sides could reply, if the accusation were accepted, that he is no worse than anyone else and that he could not do otherwise, no matter what. Accepting this claim of the impossibility of neutrality would open the gate too wide: it would remove the teeth from a charge of partisan teaching.

3. Similarly, if the claim were accepted, liberal proponents of the notion that the schools should take a stand on controversial issues would have a powerful argument for persuading their cautious liberal colleagues to go along with this notion. This is because the colleagues would be advocating an "impossible" course of action, and of the alternatives to this impossible course, the liberal rather than the conservative approach is, of course, preferred by the colleagues.

The liberal proponents of the claim that neutrality is impossible tend to neglect the fact that this claim, if true, would justify, in the eyes of the conservatives, a firm stand by the schools in favor of the *status quo*. Whenever conservatives are in power, this claim can be used as a rationale for a vigorous indoctrination for the conservative side of controversial issues.

The above three applications of the claim that neutrality is impossible were presented to make clear the importance of the issue over and above the general worth of truth and consistency. A related matter in the minds of those using the neutrality gambit is that the acts of the schools have many effects which *are not realized* by those responsible for these effects. This is an important piece of information. But to go through the neutrality gambit to show this is to overstate the case and get us into trouble in other areas, as was indicated.

The main purpose of this paper is to take our minds off the argument over the impossibility of neutrality, which is essentially a verbal dispute, — a troublesome one, too, as most of them are — and to focus our attention on the real problem: What stand, *if any*, should the schools take on social questions? If this paper serves its purpose, it will help to clear the air for an intelligent appraisal of this sort of issue.

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Public Education and the Development of Work Skills[1]

CHARLES S. BENSON AND PAUL R. LOHNES

How is the productivity of the "non-professional manufacturing working force" related to secondary school curriculum content? In this careful study, Benson and Lohnes analyze the opinions of personnel officers and production managers in a sample of Massachusetts manufacturing plants and raise some more general issues concerning the relationship between education and productivity.

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It is well known that both educators and economists have long been intrigued by the relationship between mass education, on the one hand, and productivity of the working force on the other. It is generally assumed that when a society increases the amount of resources used in support of its public schools, the effects on the productive capacity of labor are significant and of a positive character, i.e., more money spent on the public education will pay a dividend eventually in raising the level of productivity. Broad policy prescriptions grounded on the assumed effects are not restricted to the industrial nations, as it has recently been proposed that educational expenditures be given the highest priority in the investment plans of the underdeveloped countries.[2]

In examining the general relationship two questions appear to be of paramount importance. (1) What specific kinds of content are efficient in raising productivity? (2) How much weight should be given in the school program to the different types of work-oriented content?[3] (If, under [1], it appears that one cannot differentiate among various kinds of content with respect to effects on productivity, then question [2] becomes meaningless.) It is to the first question that this article is addressed. In particular, we will comment on the types of content that appear to have effects on the productivity of the "non-professional manufacturing working force."

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[1] This is a summary of certain findings of a study on this subject which was undertaken by the authors under a grant from the Milton Fund of Harvard University.

[2] Cf. Charles P. Kindleberger, *Economic Development*, New York: McGraw-Hill, 1958, pp. 162 ff. It might be added that the comments of Alfred Marshall (1890) on the economic effects of mass education are still very fresh. See his *Principles of Economics*, London: Macmillan, 1947, ch. 6.

[3] This weighting problem is complicated, of course, by the likelihood that instruction in some areas, say language, can be defended in terms both of its favorable effect on productivity and of benefits in the cultural life, etc., of the society.

This is to say first of all that we are reporting on the process of development of work skills in *manufacturing* plants, as perceived by officials in these establishments. It is in manufacturing, among the various kinds of economic activity, that changes in productivity can be subjected to the closest measurement. Also public concern over maintaining a given rate of increase in productivity appears to be centered most specifically on manufacturing. But we are dealing here only with a part of total employment in the plants. Excluded from consideration in our study were (a) persons carrying the title of scientist and engineer, (b) all management above the level of foreman, (c) members in the accounting, payroll, personnel, and sales departments, and (d) all clerical staff. We were left with non-clerical workers below the level of manager-engineer in the following major departments: research and development, production, and maintenance — this is what we call "non-professional manufacturing working force," or, henceforth, simply "work force."

It is not an easy task to relate the process of skill development of the work force to secondary school education. The basic reason for the difficulty is that, while high school courses represent the end of formal education for most workers, the main part of instruction in the skills of specific jobs occurs during the period of employment and not before it. The question at issue is not whether the entrant to the labor market has skills, but whether he is able to learn skills within the time and under the methods of instruction available in the plants. In short, is the young man "trainable"? The role of the schools with respect to preparation for work is, it would seem, to provide a basis, or foundation, for learning techniques under a system of on-the-job training.

The work force is marked off in this regard from clerical employees. Most clerical employees are female and, as is usual in the case of females, training occurs before employment. The employer is able to state that the young women he hires from school X can (or cannot) type better than those he hires from school Y; he can also comment on how recent graduates from school X compare with the graduates, say, of 5 years ago.

The situation is also different from that with which one is confronted in appraising the preperation of future scientists and engineers. Here, the task is at least definable in terms of what the colleges and engineering schools, which are, of course, full-time educational institutions, desire as prerequisites for the training they offer. For the work force, the capacity of a new employee to learn certain skills *may* be appraised initially by a full-time personnel officer, but the major part of the training itself — and the judgment of rate of progress — will be done by men who have strictly a part-time, and perhaps temporary, interest in instruction. The sequence in which the trainee acquires specific skills is different in each plant; and it may vary over time and from one worker to another at the same time within a given plant. The amount of time which a man is given to learn various techniques will depend in part on the short-term rate of growth of particular industries. Necessarily, the standards and methods of training are so diverse, even within one plant, that one cannot yet look for clear and detailed statements on what the schools could do to raise the capacity of the work force.[4]

II.

The material in this article was obtained from interviews of personnel officers and production managers in manufacturing plants in Massachusetts during the period from December, 1957 through March, 1958. Interviews were from two to six hours in length, with the longer sessions usually occuring in the larger plants. In most cases a tour of the plant was included, so that the interviewer could see the skills under discussion being practiced. The reception of the interviewers was almost universally cordial, and the managers displayed a high degree of interest in the topics that we report on here.

It was deemed advisable to exclude from the population all plants with less than 100 employees. It appeared appropriate, furthermore, to concentrate on the durable goods sector of manufacturing activity. Table I indicates that the durable goods sector is characterized by a higher rate of growth, both in Massachusetts and in the nation, than are non-durable manufactures. Secondly, the table shows that average earnings of workers in durable goods firms are superior.

TABLE I

COMPARISON OF DURABLE AND NON-DURABLE SECTORS OF MANUFACTURING ACTIVITY

Manufacturing employment in the United States, 1947-1957.			
	1947	*1957*	*% increase*
Durable goods	8,373,000	9,806,000	+17.1
Non-durable goods	6,874,000	6,989,000	+ 1.7
Manufacturing employment in Massachusetts, 1947-1957.			
	1947	*1957*	*% change*
Durable goods	277,800	308,200	+10.9
Non-durable goods	445,000	382,800	−14.0
Average hourly earnings in manufacturing; Massachusetts, March 1958.			
Durable goods: $2.09			Non-durable goods: $1.80

Sources: U. S. Department of Labor, Bureau of Labor Statistics, and Massachusetts Department of Labor and Industries.

A stratified random sample was used. Sample size was 126; this represents about 30% of the durable-goods plants in the state with 100 or more employees at the period of interview.

In this article we report on the answers we received from the following set of questions:

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[4] The point at issue here is not a black and white matter. Though it is assumed that graduates of engineering schools have a certain level of professional competence, these men are expected to continue to learn their trade after they are employed. Too, the work force includes some men who have had post-high school training, e.g., graduates of full-time programs in technical institutes.

1. Do you prefer graduates of certain high schools or secondary schools in your area to those of others? If so, please state your preference and give reasons.
2. Do you prefer graduates of certain high school curricula to those of others? If so, etc. . . .
3. Are there particular courses which a young person can study in high school that provide background especially useful in your plant? Please specify by occupation, if possible.
4. Can you suggest topics that might be added to the high school curriculum as useful background for particular technical or skilled jobs in your plant?
5. Do you prefer candidates for employment who have received vocational training in high school or those with academic training, or are you indifferent as between the two types of program?

Question 5 was included to serve as a check on questions 1 and 2, and to sharpen the issues for respondents who had failed to comment on questions 1 and 2.

Now we will consider preferences for type of school program. Responses of personnel officers and production managers in the 126 plants to the questions on type of program preferred as background for new workers are given in Table II.

TABLE II

SUMMARY DATA ON PROGRAM PREFERENCE

Preference	Number of Plants	Percentage of Plants
Academic	60	48
Vocational	38	30
Indifferent	28	22

Before we proceed further, we wish to indicate that the manufacturing plants in which management favored an academic high school background for employees (roughly half the plants in our sample) represented the establishments (a) in which the majority of jobs in our sample exist; (b) in which the majority of technicians' jobs exist; (c) in which the majority of research and development activity occurs. The authors believe that these tendencies may be interpreted as adding weight to the recommendations of the interviewees in this half of their sample; in fact, the authors came to think of this group which favored academic education as the more dynamic and progressive portion of industrial management generally (with exceptions, of course). Table III gives evidence on these points.

TABLE III

AVERAGE NUMBER OF PERSONS IN PLANT WORK FORCE, PERCENTAGE OF WORK FORCE CLASSIFIED AS TECHNICIANS, AND PERCENTAGE OF WORK FORCE ENGAGED IN RESEARCH.

Plant Characterization	Preferred Academic H.S. N=60	Preferred Vocational N=38	Indifferent N=28
Average number of persons in work force	619	301	305
	$F_{2, 123} = 3.91$	$p < .05$	
Means percentage of technicians	10.5	4.9	3.0
	$F_{2, 122} = 5.70$	$p < .01$	
Mean percentage of research workers	10.2	1.4	1.3
	$F_{2, 121} = 5.59$	$p < .01$	

The analyses of variance support the generalizability of the trends in the table to the population sampled.

As the work progressed it became apparent that differences in opinion on education were somewhat systematically related to differences in skill requirements. The authors discovered that these differences were significantly related to a classification of the plants in terms of basic manufacturing process. Three groups were defined, in the light of the following considerations.

First, it was apparent that processes in some manufacturing plants are immediately linked with the application of current findings in the physical sciences. It is, of course, true that all manufacturing firms make application of findings in physical science, but in many plants the major processes represent a well-developed and stable technology (e.g., foundry and forge operations). Other plants concentrate on processes that exist in a *milieu* of rapidly changing technology. Those plants affected in their major processes by a rapidly changing technology would be expected to have a different occupational structure from those not affected. In particular, the scientifically oriented plants would be likely to have a higher proportion of technicians in their structure. We accordingly established a *physical science process group*. Members include the following types of plants:

1. Those whose operation is largely concerned with application of electrical theory, vacuum tube theory, and related disciplines.
2. Those whose operation is largely concerned with making devices for precise measurement and control, i.e., the "instrumentation group".
3. Those engaged in a chemical process.

4. Those currently operating largely as a prototype (or development) unit in those fields of manufacture covered in our sample.

As a matter of practical judgment, this listing appeared to cover those plants in our sample whose processes are presently affected by recent findings in the physical sciences.

With respect to the remaining plants, i.e., the "non-physical science plants," it seemed to make a difference whether the processes of *machining* were a major component of the activity. By machining we mean the shaping of metal to close tolerances through the operations of turning, milling, and boring, by use of power-driven machines. We came to believe that plants concentrating on the group of machining processes have considerably higher requirements for "manual" skills than those that do not, and we argue that machining processes establish a requirement for a higher order of "manual" skills than non-machined processes, themselves considered as a group. Indeed, the difference in task between the "technician," commonly regarded as a person who is able to work with abstractions, and the "skilled manual worker" in a machine tool plant appears to be illusive. The extent to which this manual worker uses analytical techniques, as distinct from manual dexterity, would seem to be equal to that of many technicians in electronics plants, for instance. We thus arrived then at a three-group classification by process: I *physical science process group;* II *machining process group;* III *non-machined fabrication — assembly group.* It is worth mentioning the types of processes that are included in our third group. There is fabrication by the following means: stamping, punching, hammering, drawing (as in wire drawing), melting-pouring. There is also assembly of previously-fabricated parts, except such assembly as requires the application of electrical theory, etc.

Now we should consider the problem of overlap. A given plant may be engaged in making instruments for which it fabricates machined parts. It could then be included in either Group I or Group II. The practice we followed was to fill the groups in the order in which they have been described here; the instrumentation firm would be included in Group I and not in Group II. There is also a second kind of overlap. A plastics molding firm may have a research and development unit included in its plant structure and a metal stamping plant may machine its own dies in its own tool room. Neither the scientific activity in the plastics firm nor the machining activity in the metal stamping plant, however, is integral or essential to the main operation in these plants. The research service could be obtained free from the supplier of plastic powder or bought under contract; likewise, the dies for the stamping plant could simply be purchased. Our practice was to include all such cases in Group III. This means that the actual count of skilled personnel in Group III is somewhat greater than would be required to carry on the major processes of the group.

Group I, we believed, would generally favor academic background, while Group II would show a preference for vocational training. Group III, in our opinion, included mostly plants in which work skills can be acquired through a short period of direct observation and trial-and-error, with little connection between mastery of these skills and formal schooling. Hence, we postulated that Group III would include a relatively large proportion of plants that were indifferent with respect to school program of entry workers.

That the type of high school program preferred is significantly related to the process-group scheme is indicated in Table IV.

TABLE IV

ACTUAL AND EXPECTED FREQUENCIES OF PLANTS
IN A TWO-WAY CLASSIFICATION
BY PROCESS GROUP AND HIGH SCHOOL PREFERENCE.
(EXPECTED FREQUENCIES IN BRACKETS BELOW ACTUAL FREQUENCIES.)

Process Group	*High School Preference*			
	Academic	Vocational	Indifferent	Total
I. Scientific	28 (16.67)	4 (10.56)	3 (7.77)	35
II. Machining	18 (20.48)	22 (12.97)	3 (9.55)	43
III. Non-machined fabrication assembly	14 (22.85)	12 (14.47)	22 (10.68)	48
Total	60	38	28	126

$X^{2}_{4} = 43.0 \quad p < .01$

The distribution is consistent with our hypothesis. Group II, while it has a majority of plants in favor of vocational training, shows a somewhat higher preference for academic background than we would have expected on the grounds of our *a priori* hypothesis.

On the questions pertaining to courses, officials in 92 plants mentioned one or more subjects that were seen as important in preparation for skilled or technical work; in 34 plants no specific courses were seen as especially relevant.[5] Mathematics courses were mentioned most frequently (57 plants).[6] Basic courses in physical science were listed in 33 plants. Machine shop was the third most common subject (28 plants). Blueprint reading was mentioned 19 times. Applied science courses (electricity, electronics, and metallurgy) were specified in 18 instances. English was mentioned 15 times. No other course or topic was listed in as many as 10 plants.

[5] Question 4 above, dealing with what topics (as distinct from courses generally known to be a part of high school curricula) would be helpful as background for entrants to the work force, did not draw any significant response.

[6] Officials in only two plants mentioned calculus specifically. Shop mathematics was mentioned only twice. Courses specified most often were algebra, geometry, and trigonometry.

Table V shows that preferences on type of course are related to the process-group scheme. "Academic" subjects include mathematics, basic physical science, English, economics, and other liberal arts courses. "Vocational" courses encompass machine shop, applied science, blueprint reading, mechanical drawing, and certain other highly specific subjects such as welding technology. The distribution of course preferences in Table V is as expected: Group I favors academic courses, Group II prefers vocational material, and Group III shows a high proportion of plants with no courses listed as relevant. However, it is interesting to note that a substantial number of Group I plants desire some applied courses; likewise, a rather large proportion of Group II plants desire some basic, as distinct from applied, subjects. We would point out again that of the 57 plants that mentioned one or more courses of a vocational type, only 28 specified machine shop. This is some indication that the pressure on the schools to develop the skills of machine operation is not very strong.[7]

TABLE V

ACTUAL AND EXPECTED FREQUENCIES OF PLANTS
IN A TWO-WAY CLASSIFICATION
BY PROCESS GROUP AND SPECIFIC SUBJECTS MENTIONED.
(EXPECTED FREQUENCIES IN BRACKETS BELOW ACTUAL FREQUENCIES.)

		Specific Subjects Mentioned				
	Process Group	Vocational	Academic	Both Voc. & Acad.	None	Total
I.	Scientific	4 (7.22)	17 (9.72)	12 (8.61)	2 (9.44)	35
II.	Machining	14 (8.88)	8 (11.95)	8 (10.58)	12 (11.60)	43
III.	Non-Machined fabrication – assembly	8 (9.91)	10 (13.33)	11 (11.81)	20 (12.95)	48
	Total	26	35	31	34	126

$X^2_6 = 24.18$ $p < .01$

In Table VI we show types of courses desired as related to preference on school program. The stipulations on program are generally consistent with preferences on subjects.

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[7] This is not to deny that the respondents generally were in favor of the students receiving an introduction to machine operation and shop practice.

TABLE VI

ACTUAL AND EXPECTED FREQUENCIES OF PLANTS IN A TWO-WAY CLASSIFICATION BY HIGH-SCHOOL PREFERENCE AND SPECIFIC SUBJECTS MENTIONED.

(EXPECTED FREQUENCIES IN BRACKETS BELOW ACTUAL FREQUENCIES.)

	Specific Subjects Mentioned				
High School Preference	Vocational	Academic	Both Voc. & Acad.	None	Total
I. Academic	1 (12.38)	26 (16.67)	18 (14.76)	15 (16.19)	60
II. Vocational	22 (7.84)	3 (10.56)	8 (9.35)	5 (10.25)	38
III. Indifferent	3 (5.78)	6 (7.78)	5 (6.89)	14 (7.55)	28
Total	26	35	31	34	126

$X^2_6 = 58.13 \quad p < .01$

As a further indication of the usefulness of the process-group criterion the authors constructed and analyzed two additional variables reflecting intensity of skill requirements: the first involved a count of the number of persons in the work force of each plant who appear to require formal education or training beyond that given in a "general" high school program (as distinct from college-preparatory, technical and vocational programs); the second involved a count of persons in each plant who are "full" technicians in the sense that their level of competence is that of an individual who has completed two years of post high school technical training. The following table indicates that the three process groups differ significantly with respect to these two variables.

TABLE VII

ANALYSIS OF VARIANCE OF TWO VARIABLES RELATED TO THE PROCESS GROUPING

	Process Group		
	Scientific	Machining	Other
Mean percentage requiring special education or training	21.6	23.0	5.9
		$F_{2,122} = 13.1$	$p < .01$
Mean percentage full technician	10.6	1.6	.9
		$F_{2,122} = 11.1$	$p < .01$

The generalizations which seem to be supported by this research are: (a) the skilled worker requirements of both the scientific and the machining process groups are high, with the scientific group placing the greatest reliance on "technicians" and the machining group on "craftsmen"; (b) management in the Group I (scientific process) favors strongly an academic high school background for workers, while management in the Group II (machining process) is slightly partial toward a vocational high school background, and management in the Group III tends to be indifferent on this question; (c) when the specific high school subjects mentioned as desirable by the interviewees are tabulated it becomes clear that there is a major concern with academic subjects, particularly mathematics, and that, as might be supposed, this concern is strongest in the scientific group.

III.

At this point we should comment on certain reservations about the material presented in Part II. First, the reader may well question whether we obtained just "top of the head" answers.[8] And, since we held the interviews in the winter of 1957-58, were the respondents who stressed mathematics reflecting simply a public concern over scientific leadership in the United States in the light of Russian accomplishments? We did seek to discourage casual responses to the questions on program and course preferences in this way.

The questions on school programs came after *at least* one hour of interviewing. Already covered had been a detailed reporting of the occupational structure in the plant, the pattern of movement in the various job hierarchies, shortages by job title and methods of adjustment thereto, the kinds of training provided in the plant or otherwise financed by the firm, and the methods of assessment of qualifications of applicants for work. If an official had reported very few technical or skilled jobs in the plants, no significant vertical mobility, no interest in skill development, and no examination of educational records of newly-hired persons, he could hardly say with a straight face that his force found trigonometry and physics of great benefit in their work.

A second reservation bears on our classification of responses on programs as "academic," "vocational," or "indifferent." We asked the respondent to give his major preference, or, if he had none, to say that he was indifferent in the sense of "it makes no difference." Now, it seems intuitively clear that almost all plants will have some jobs that are properly based on academic background, some that are closely related to the programs of vocational schools, and some that are of such a routine nature that no formal training is relevant. Yet we had no real difficulty in eliciting a major preference. It helped that we were working on the plant level, not the firm. But it appears that plants are engaged in development of skills of only some of their workers. An electronics plant may have formal or informal programs for training technicians but hire its craft skills "off the market," i.e., fully trained when hired. Likewise, a machine tool plant may train set-up men and machinists but hire its technicians off the market. In the first instance, there might well have been a major preference for academic background and in the second, vocational. Preferences on pre-employment training, then, refer to that class of applicant who is to be considered for the area(s) in which skill development is expected to take place, which areas are generally few in number in a given plant, and where more than one exists, similar in nature.

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[8] It is true, of course, that the plant officials, with a few exceptions, were not (and did not regard themselves as) authorities in the field of school curriculum or vocational development. Nonetheless, the men we interviewed are required by their roles in the plant to make judgments on the capacity of individuals to learn advanced techniques of manufacturing. (Either that, or they supervise the making of these decisions.) We made an effort to restrict our questions — and the respondent's comments — to the operations in the plant where we were holding the interview, rather than to let the discussion range over the problems of the firm or industry.

We recognize also that preference of program may reflect special considerations, and that it may be held for reasons unrelated to the inculcation of a particular type of substantive content. For instance, some of those who favored vocational school graduates stated that these men possessed *some* shop skills, which facilitated their adjustment to industry and shortened their break-in period on semi-skilled jobs. However, it was generally reported that a trade high school background did not decrease the total length of time required to develop a full craftman's skill in a trade, so that any advantage was temporary. Furthermore, respondents indicated that the vocational schools provide a valuable screening service: (a) students in trade schools had reconciled themselves to factory work, and (b) the faculty in these schools was in a good position to appraise the capacity of individual students and hence help the employer to fit the applicant to the job. With respect to preference for academic background, some respondents said frankly that they wanted men from these schools because they thought they were "smarter" than trade school boys. Finally, many of those favoring trade school boys wanted the trade school program revised by the addition of such extensive academic material that the result would no longer approximate today's trade course. Likewise, there was a desire, as already indicated, that the academic programs include some courses of an applied character.

IV.

Having reported on the types of school background that plant officials see as appropriate for entrants to the non-professional work force, it is now appropriate to ask whether the manufacturing firms are experiencing any shortage of persons who are regarded as trainable, i.e., a short supply of those who have the desired background in sufficient measure. If we take as sole criterion of shortage a shift in relative wage rates — a widening of the gap between skilled and semi-skilled pay — we must admit that we have no evidence of a short supply.[9] But it is hard to believe that the labor market is perfect enough with regard to the determination of wage differentials among grades of skill to accept this single criterion.

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[9] In some plants in our sample, semi-skilled operators on price-rate were earning more than craftsmen. Also, see Kursh, Harry *Apprenticeships in America*, New York: W. W. Norton, 1958, pp. 22 ff.

Of the plants in our sample, 36 per cent reported a shortage of applicants for one or more skilled or technical jobs. (It is perhaps surprising that the figure is so high in a state such as Massachusetts where the level of employment in manufacturing has been roughly stable for many years.) Specific shortages were concentrated on such high skills in the working force as tool and model maker, machinist, and "full" technician.

But the reported shortage of advanced skills does not serve to appraise the quality of entrants to the work force. Here, we rely on two sets of comments that we received with frequency, though both kinds were unsolicited. First, over forty of the respondents offered spontaneous, and sometimes vehement, remarks on the attitudes of the young people they hired. It was said that it does not occur to these workers that there should be some rational connection between pay and productivity, and that to earn more a person should produce more or render a more valuable service. Nor do the young people see why promotions and job security should be functions of individual productivity and promise, rather than of strict seniority. They cannot understand the non-monetary rewards of craftsmanship. They have no interest in learning the skilled trades, and shun apprenticeship opportunities.

Secondly, 26 respondents indicated that the service of vocational guidance in the schools should be improved. These 26 managers spoke of this need by name and in detail, despite the fact that no question on the subject was asked. Many responses of other interviewees strongly implied criticism of vocational guidance practices, although not by name. The main emphasis of the comments was that *every* high school student should receive complete vocational guidance, and not just a few who are interested in college or who voluntarily request it for other reasons. A complete vocational guidance program, as described, would include (a) testing, (b) job information, (c) orientation on the economic value of various education achievements.

We do not attempt any close appraisal of these kinds of comments. They do indicate, it is believed, that a fair proportion of plant officials are less than pleased with the entrants to the work force. How much of the displeasure is related to the lack of mastery of content of the high school curriculum is very hard to say.

V.

It appears not unlikely that the supply of persons who are regarded as "trainable" in manufacturing plants is short, i.e., a smaller number of qualified applicants is available than the firms would like to hire at going wage rates. If so, should the shortage be regarded as a matter of serious concern? First, let us recognize that manufacturing is regarded (properly, one would think) as a dynamic activity. Business leaders take pride in their ability to adapt their processes to fit an existing market situation. It is to be expected manufacturing officials would seek to make adjustments to a shortage of skilled workers.

In the short-run, the manufacturers would be expected to stretch the supply of scarce skills by overtime and be seeding a few fully-qualified craftsmen among a number of half-trained men.[10] In this latter process, non-routine problems of production are often solved by group, rather than individual, activity. In the longer run, manufacturers would be expected to alter processes of production to use fewer highly-skilled men. In terms of economic efficiency, strictly considered, these adaptations are desirable, because the loss to the society in flow of goods and services is minimized. In terms of the satisfaction that people are able to derive from their work (as distinct from the rewards in goods and services from the fruits of the work), it may, within limits, be harmful. Economizing on a short supply of "trainable" people may reduce the number of interesting jobs that are available for non-college graduates. Adaptation to a shortage of skills would then involve a social, as distinct from a private, cost.

At least one type of manufacturing plant, however, cannot readily "engineer the (labor) cost out of the product."[11] This is the type of plant that supplies central governments with equipment for defense and scientific exploration. Since the beginning of World War II, the purchases by central governments of goods have represented a significant share of total demand in the industrialized countries. With respect to this type of demand, the pressures on the producers to supply complexity and reliability in the product have been extreme. It is possible that plants of this kind would adapt themselves to a shortage of persons with insufficient educational background by themselves providing academic training for their workers. In our own experience, we did observe several large plants in the scientific process group where instruction in mathematics at the high school level is now being given within the walls of the factory.

Although these plants supply some (and in a few cases, nearly all) of their output to governments, they are still private concerns. The focus of their activity properly is to assure their own survival as members of the market economy. A concern with the development of the *individual* to a reasonably high level of his capacity is subsidiary. Thus, selection processes might rest on testing at one point of time, for instance, and training programs might well be cut back in a recession: in short, some promising candidates would be lost through the adaption of the training program to the needs of dollar efficiency. This is also social cost of a kind.

Reliance on the worker's initiative to overcome inequities is, we believe, a second-best. For one thing, while the man who is admitted to college has reason to believe that he is capable of receiving further training (the fact of his admission to college shows it), it would seem that the young man who goes to the factory right after high school often has little basis himself to judge whether he is a good candidate for training or not.

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[10] The same process is at work where the engineer is used in positions that could be held by technicians, if there were enough of them available.

[11] On this point, see testimony in *Hearings on Instrumentation and Automation, Joint Economic Committee, Seventy-Ninth Congress,* esp. pp. 157.

The public schools do not feel pressures for survival as intensely as manufacturing concerns do, at least with respect to the short-run. There is time both for instruction more or less in accordance with the capacities of individual students and for guidance. The interest of the schools in the problems of the work force, insofar as it exists, should center, we believe, not on any general — and at this time necessarily vague — concern with the assumed effects of education on productivity, but on providing a basis for the further development of whatever level of capacity the individual himself has, in the light of information that is available — or that becomes available — on the tasks that he can be expected eventually to perform.

Book Reviews

The Academic Mind, Paul F. Lazarsfeld and Wagner Thielens, Jr. Free Press, Glencoe, Illinois, 1958. 460 pp. $7.50.

The title *The Academic Mind* promises more than this study delivers. What Paul F. Lazarsfeld and Wagner Thielens, Jr., have undertaken is something considerably narrower but still sufficiently important — a report on the impact of the McCarthy years on college teaching. The result illuminates the academic mind under one sort of stress, but, as I am sure the authors would concede, leaves many aspects of that mind, both squalid and noble, to be surveyed elsewhere. However, one can no longer hold titles against books. Whatever the title, the book is an impressive exercise in the fields of behavioral science, education, and history.

In planning their inquiry, Messrs. Lazarsfeld and Thielens decided to concentrate on social scientists; these, after all, were the teachers professionally concerned with the particular issues agitating the community outside. The aim of the study was to get, not at relatively tangible matters, like the effect of McCarthy-type pressure on curricula, but at the features of the situation which left no documentary record — "the immediate reactions, attitudes, feelings, and expectations of the people involved." The method was to hold interviews with nearly 2500 teachers of social sciences in American colleges. The interviews were conducted in the spring of 1955 on the basis of an elaborate questionnaire arranged to elicit a broad range of reactions, conscious and unconscious, to various aspects of the supposed crisis. *The Academic Mind* is a record and interpretation of these interviews.

I should note first that the strategy and tactics of this investigation — and David Riesman's appendix with its sensitive evaluation of the hazards of the interviewing process — deserve thoughtful attention as examples of the evolution of method (or, as its practitioners, alas, prefer to call it, "methodology") in the behavioral sciences. Since, however, this review is written for a journal of education, I will concentrate here on the result rather than on the method. I would say only that, even if the inquiry at some stages seems to conclude in rather top-heavy vindications of the obvious, one remains impressed by the intelligent design of the investigations and by the discretion, vigilance and penetration of the analysis. *The Academic Mind* will stand as formidable evidence for the usefulness of quantitative methods in social inquiry — so long, in any case, as they are interpreted by men of the qualitative insight of Messrs. Lazarsfeld and Thielens.

As for the result, the book first demonstrates a "marked increase in the pressures and attacks experienced by American college teachers during the post-war decade" (p.71). The effect of this increase in pressure, the authors next show, was to induce widespread sentiments of worry and caution through the academic communty. About one fifth of the respondents reported that they felt their own academic freedom to have been threatened — a disturbing proportion by normal standards, though rather smaller than supposed by some panic-stricken commentators of the early fifties.

So far none of this is particularly surprising. Where Messrs. Lazarsfeld and Thielens make their contribution is in clarifying the character of the attack and of the academic response. One had supposed that the more obscure and mediocre colleges might be the more vulnerable to outside pressure. This may well have been, in fact, the case. But, if more vulnerable, they were also more cowed and less assertive; they caused less trouble and attracted less punitive attention. The Lazarsfeld-Thielens report shows that the main attack was directed rather at the distinguished institutions and at the distinguished members of the profession (in terms of productivity and intellectual leadership). The attackers may have thought they were preserving college youth from subversion. "What was really under attack," the authors suggest, "was the quality of American college education" (p.166).

How effective was this attack? *The Academic Mind* makes it abundantly clear that the increase in worry and caution constrained college teachers a great deal in their relation to the outside community and somewhat in their performance in the classroom. It reports moments of extraordinary humiliation for the profession: the midwestern economist who told an interviewer, "When I go into a men's club, I intend to act like a sheep; the healthy thing for a professor to do is to let the businessman talk"; the pacifist professor who bought and displayed an American flag during a local Junior Chamber of Commerce drive to forestall doubts about his patriotism; the teacher who said, "We all want to be known as innocuous members of the horde" (pp. 225-7, 235). The campaign, Lazarsfeld and Thielens contend, caused many social scientists to withdraw from participation in public activities and confine themselves to narrow spheres of teaching and research, thereby reducing the "effective scope" of higher education in America (p.264). In the end, it threatened both "the very nature and quality of social science teaching" (p.155) and "the superior college as an entity" (p.161).

Yet they also make it clear that drastic cries of gloom — they cite a 1954 statement by Robert M. Hutchins (whose Fund for the Republic sponsored the study) about the crushing of the spirit of the teaching profession (p.71) – were unduly pessimistic. If the superior institutions bore the greater share of the attack, their presidents and deans were also more alert to the defense of academic freedom; and if the distinguished members of the profession were under more systematic harassment, they also were more disposed to fight back. As Messrs. Lazarsfeld and Thielens sum up their evidence:

> The higher the quality of a college, the larger its proportion of permissive [i.e., intellectually adventurous] social scientists.
>
> The higher the quality, the stronger the pressures and attacks from the off-campus community.
>
> The higher the quality of a school, the better the performance of the administration in defending the academic freedom of its social scientists (p. 176).

How to account for the phenomenon of fighting back? Here Messrs. Lazarsfeld and Thielens draw a useful distinction between private and public courage. When a professor thought he could get away with it unnoticed, he tended to the cautious avoidance of issues. But, "if a situation develops where he must take a visible stand he [often decides that he] may have to chance it and join his peers." In other words, "the professional community" was the source of courage for the individual.

> Left to their own devices many teachers might have considered caution the better part of wisdom. But when the need arose to stand up and be counted, it was safer to do so.

Thus in matters of academic freedom, "the teacher seems inclined to be courageous in public and cautious in private. . . . The climate of opinion can hold in line many who would otherwise break down under attacks from the broader community" (p.104-6). Ironically, the need to conform to the expectations of his own group often nerved the professor to a posture of defiance toward outside aggression; as David Riesman has reminded us, there is the "tyranny of the minority" as well as the tyranny of the majority.

The evident power of "the professional community" with its tradition of freedom raises one issue with which *The Academic Mind* does not, in my judgment, treat in an entirely convincing way. The authors quote a 1956 comment by this reviewer on the problem of academic freedom in the McCarthy years: "What is really at issue has not been so much 'academic freedom' itself as it is the self-respect and reputation of the academic profession."[1] By this, I meant that the anti-intellectual campaign had perhaps done less actual harm to intellectual freedom than it had to the college teacher's image of himself and his place in society. The authors write that they had originally supposed this to be the case too, but that the questionnaire produced only negligible support for this proposition. Asked to designate the harmful consequences of the campaign, only sixty respondents checked, "It degrades the academic profession" (pp. 111-112). Messrs. Lazarsfeld and Thielens explain this by suggesting that college teachers already had such strong feelings of occupational inferiority that they could not conceive further degradation as the chief consequence of the attack.

I am not sure that this really disposes of the problem. For one thing, the respondents were asked to select only one of four alternatives; the fact that nearly three-fourths chose "impairing the intellectual role of the college" or "discouraging constructive public discussion" as the chief consequence does not mean that they did not in addition feel a serious threat to the status of their profession. For another, the phrasing of the status question was not perhaps altogether happy; if the formulation had been "downgrades the academic profession" rather than "degrades", the emphasis would have been on objective standing rather than subjective humiliation, and the issue would have been put with greater precision. More than that, in another section of the book a hundred pages further on, Lazarsfeld and Thielen themselves set forth evidences of what they call "the endangered self-respect of the professor" — the very phenomenon whose reality they seem disposed to deny at the earlier point. Here they discuss "the debasing assumption that the teacher is in the wrong," "the sense of powerlessness," "the feeling of guilt over compromises of principle" — all elements in the teacher's picture of himself and his social role (pp. 227-229).

If academic status was the main prop of morale in the face of attack, if academic freedom, in the main, was not deeply injured, and if there were plain evidences of an "endangered self-respect" (even if they did not show up in the particular question designed to elicit them), one is perhaps still justified in supposing that the concern of the profession arose more out of the threat to status than out of threats to academic freedom *per se*. Or, at least, one wishes that the authors had engaged in a more extended discussion of the issue when their own evidence seemed so contradictory.

For all this, *The Academic Mind* remains an illuminating contribution to the self-knowledge of the American college teacher, as well as a valuable addition to the literature of the behavioral sciences.

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[1] (*Journal of Higher Education*, June, 1956)

Education and Human Relations, Ashley Montagu. Grove Press, New York, 1958. 191 pp. $1.45.

I wish it were possible to review this book more favorably. One likes to speak well of a work when the author's orientation toward "education and human relations" is often congenial to one's own. I also wish that this book had not been published as it stands. Aside from the repetitions, which are really too numerous to be excused even by the previous publication of most chapters as separate articles, Ashley Montagu has not rendered a service to the admirable position that he wishes to defend and to promote.

He has not done so because — granting that he is not writing for fellow anthropologists — the premises, the evidence, the logic, and the conclusions of his principal theme are all open to much more question and qualification than the lay reader is likely to suppose. I do not believe that so important a theme is advanced by hasty generalizations or unwarranted inferences. On the contrary, it is defensible only to the extent that it can withstand the sharpest possible inquiry and the most devastating counterevidence. Teachers, parents, and others concerned with good education need to give serious attention to the magnetic, creative, democratic means and ends which the author espouses. But we have to find ways of doing so that avoid the weaknesses of this kind of loaded presentation while benefiting from its strengths — its verve and persuasive style, for example.

The central argument is familiar to readers of Montagu's abundant works — and in fairness to him, he does refer to *The Direction of Human Development* and other books which elaborate (though it is doubtful that they thereby substantiate) many of his contentions here. This argument, briefly stated, is that — contrary especially to Darwin and Freud — human nature is not inherently aggressive or competitive but, rather, is loving and cooperative. Aggressiveness is entirely the product of frustrations that are themselves entirely induced by cultural experience. The solution to the evil, accordingly, is to eliminate frustrations by providing an environment of warm affection. The family ought, of course, to be the center of such affection, but the school certainly ought to be, too. The most important task of education, indeed, is the building of good — that is, loving — human relations. By comparison, all other tasks such as instruction in the three R's are of subordinate importance. "My greatest teachers have been great lovers."

Practically, Montagu offers several audacious but excellent suggestions by which this norm could be approached. Art should play a much larger role in the curriculum, but it should be of a kind that encourages children to express their naturally loving natures. Nursery schools should be established throughout the public-school system. Prospective parents should be required to take two or three hours of learning per week in the art of family living. The tasks and goals of motherhood should be the first obligation of women's education.

These and other proposals are too significant to rest on the shaky foundations that Montagu constructs. While one can do little more than illustrate in a review, take the statement that "there is not a shred of supporting evidence [for] the belief that man is inherently born aggressive." Rather, "*all* the available evidence gathered by competent investigators indicates that man is born without any aggressiveness within him whatsoever." These words are rather misleading. Actually, the evidence has never determined whether or not aggressive drives exist inherently, for the reason that, by the time a child is subjected to any kind of scientific study of the problem, he is already affected by cultural influences. This is not to say, obviously, that inherent aggressiveness is after all a fact; strictly speaking, it is only to say that the case is neither proved nor disproved. It may remain neither for a long time to come.

Whether the child is inherently loving and cooperative remains, by the same token, also unproved. Here again cultural influences are already at work whenever he is brought within the focus of investigation. Certainly the evidence shows that he responds in loving ways to affection, but a response is not equivalent to an inherent characteristic. If it were, then those who contend that aggressiveness is inherent would be justified in their contention also, since children do respond aggressively to frustrating behavior just as they respond lovingly to affectionate behavior. Freudian theory proceeds from the assumption that aggressive responses prove the existence of inherent aggressiveness; this is just as dubious as it is to say with Montagu that loving responses prove the existence of inherent love.

There is, of course, a more fruitfully scientific way to approach the problem than in terms of antecedent causes. We may ask instead: What follows when we treat each of the two views, not as established facts, but rather as operating concepts for dealing with human nature as it behaves in observable cultural experience? Put this way, the evidence is overwhelming, as Montagu shows, that affectionate relations enlarge the capacity of the child to love. Thus the vast therapeutic value of this conclusion for educational practice is altogether justified. But those who contend that aggressiveness is also a potent human force (leaving aside again the question of innateness) are likewise able to produce substantial evidence that conduct providing for release of aggressive feelings has comparable therapeutic value. Psychoanalysis, for example, is certainly not without its substantial body of testimony that mental health may be restored by operating on the frustrations of a patient in such a way as to give vent to his aggressions. In education itself, a case for competition may be made in sports (not necessarily of the interscholastic variety) and in scholarly work (not necessarily through the conventional grading system) on the ground that this activity affords just as necessary a release as does one that encourages cooperation.

How much and what kinds of competition would help to sublimate or rechannel hostilities and other aggressions, as against activities that would intensify them, are empirical questions which, though far from easy to answer, are to be tested by their behavioral consequences in the same way that loving consequences are to be tested. One cannot disregard the possibly constructive role of both simply because one of them happens to be uncongenial to one's own preferred assumptions.

Still another way to contend that the needed educational program should be less exclusively an "either-or" approach is provided by a remarkable quotation from Montagu himself:

> Frustration may be defined as the thwarting of an expected satisfaction. A certain amount of frustration is a necessary part of the development of every person. To learn to postpone immediate satisfactions for long-term ones requires the experience and handling of a certain amount of frustration, and this is both unavoidable and desirable if a healthy, mature personality is to be developed. But too much frustration is quite another thing. This is undesirable because it serves to cripple the development of a healthy personality, having the effect of producing either an excessively dependent, shy person or an overaggressive, highly competitive one (pp. 88f.).

To say, however, that some frustration is "necessary" and even "desirable" is also to say that some aggressiveness is necessary and desirable, since the latter usually, if not invariably, accompanies the former. This in turn is to admit that aggressiveness itself may have positive value and thus to reinforce the point above that there may be need to provide constructive opportunity for its educational expression. Of course "too much frustration" and thus too much aggression are undesirable, but here one is confronted again with an empirical question requiring careful planning in terms of school activities.

This line of argument, though it follows logically from Montagu's own assertion, modifies drastically his central thesis. What it means is that human life is so organized, and will continue to be so organized in the foreseeable future, that all human beings must expect to suffer from frustrating experiences simply because desires get in one another's way. Even the basic needs charted by Montagu (curiously, they fail to include sex explicitly; is it possible that his hostility to Freud has "unconsciously" affected his selection? [see pp. 73, 93]) cannot in reality be satisfied without some degree of conflict. The key educational problem, from this viewpoint, thus becomes somewhat different from Montagu's: it is that of providing the best possible instrumentalities for intelligently weighing and testing the conflicting claims of needs and of learning how to satisfy those which, in the long run, offer greater satisfaction than others do. This is, of course, the view of progressivists who understand John Dewey's ethical theory. Quite consistently their emphasis is upon moral problems which imply the persistence of frustration and aggression just as realistically as love and cooperation.

Yet, despite the greater sophistication of progressivism in its approach to moral education, Montagu has in one sense gone beyond that philosophy. He is concerned not only that education deal with moral problems but that it commit itself to the achievement of definite constructive values — values which, he holds, are now supported by a wealth of scientific evidence. I commend his effort because, for one thing, I do not believe that education should consist so centrally of the problem-solving process as we are told it should.

But Montagu's ground for going further than the progressivists does not seem to me entirely legitimate. He beclouds the issue by enfusing his scientific data with value judgments that have no business interfering in the way that they do. "Human nature is good," he insists, "and treated as such it leads to goodness." At the same time, no "human being is born with the slightest element of evil within him." "Man is not born evil or aggressive. . . ."

Now, as a philosopher of sorts, I welcome Montagu's concern with the values of human life. But I object to his utilizing the prestige of any science, including anthropology, to pass value judgments upon data about human nature or any other part of nature without clearly distinguishing between such judgments *and* the data as such. Indeed, to obfuscate the evidence that man is loving and cooperative by injecting a value judgment in the guise of a purely scientific statement weakens rather than strengthens Montagu's position. It leads one to suspect that, as has been repeatedly true in the history of human affairs, the fallacy of selected instances has been committed to advance the protagonist's cause. I wish that Montagu had taken more seriously his own stricture against Freud:

> Only too often facts, and even laws of nature, turn out to be nothing but theories which have been smuggled across the border without benefit of the proper scientific customs examination of their right to enter the realm of fact. The proper attitude in the face of facts or theories is not belief or disbelief, but dispassionate inquiry (p. 135).

At some places in his book, to be sure, the author does write as a cautious scientist. For example: "The energy subserving the functions of love is no different from that which supplies the dynamos of aggression. The one is not a transformation of the other. . . ." But the point is that this energy is not of itself good or evil either; it becomes so as the culture channels and utilizes it. The culture places values upon the way this occurs in terms of its own goals. Thus it becomes perfectly possible for a given culture to regard aggressiveness as of higher worth than love. Indeed, beginning most famously with Sparta, some cultures have.

I am not here defending cultural relativism. True, as Montagu would himself agree if he stuck closer to his anthropology, values are in certain respects relative to particular cultures. This does not prevent us, however, from searching also for cross-cultural values — "empirical universals" — nor does it prevent us from seeking and finding substantial reasons for committing ourselves to some of these values. How this is possible in cultural terms extends beyond the confines of my available space; I have dealt with the problem elsewhere. I can only say here that I should like to see an educational commitment close in many respects to Montagu's commitment. But I could not pretend to establish it by pleading so exclusively on the authority of current scientific evidence alone: not only is the latter insufficient; I question whether it will ever be sufficient by and of itself. Nor should I wish to deny, as Montagu almost does, though at the cost of inconsistency, that aggressiveness and conflict may have their own desirable and constructive roles in the education of the young.

THEODORE BRAMELD
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Classrooms in the Factories: An Account of Educational Activities Conducted by American Industry, Harold F. Clark and Harold S. Sloan. Institute of Research, Fairleigh Dickinson University, Rutherford, N. J., 1958. viii + 139 pp. $3.75.

"It would be hard to find in recent years," so the Messrs. Clark and Sloan tell us, "a more thorough-going shift in values than that manifested by industry's preoccupation (*sic*) with education" (p. 127). They present information showing the scope of the "educational" activities of large corporations to be far beyond what most people imagine. Their book is chiefly a summary of information obtained from a number of the largest corporations by means of a short questionnaire, follow-up conferences, and an examination of available brochures, announcements, and other relevant writings.

Of the 482 corporations polled, only 72.4% replied, a fact with which the authors deal in an unusually conscientious way, reminding us frequently of the existence of the other corporations whose information could not be included in the tabulations. Of those who did reply, 84.8% "reported carrying on some sort of educational activity requiring regular attendance" (p. 14). The authors point out, however, that even assuming these answers to be accurate, between 61.4% and 89.0% were actually carrying on such activities. Similarly, those corporations which assume the expenses of employees' education in outside institutions, either in whole or in part, may comprise anywhere from 41.0% to 70.5% of those polled. If anyone is in a position to speculate intelligently as to where the truth may lie, it is the authors, yet they choose not to. Thus, most of the results of the questionnaire study are left ambiguous, and the question naturally arises as to how useful the survey is for practical or intellectual purposes.

One or two of the findings are clear enough to be thought-provoking. Supervisors and foremen are most frequently reported as the category of persons which attends these classes; next come junior executives; then business professionals; then, after a considerable gap, senior executives. The subjects studied and reported in descending order of frequency are: orientation, management and supervision, human relations, and, considerably behind them, technical and professional material. "General education" is listed in only 15.8% of the programs reported on. Though the authors do not make the point, a proper interpretation seems to be that both workers in the lower echelons and senior executives are expected either already to possess or to acquire informally on the job such special training as they need. It is in the middle echelons, where high technical and leadership skills are needed, that the provision of formal schooling is regarded as most necessary.

Not only the figures on offerings, but much of the rest of what the book presents point to a further inference, namely, that except where the presumed interests of those in control of the company and the interests of the employee-student happen to coincide, it is the former alone that the proffered "education" is calculated to serve. This is hardly surprising, and it would seem fair enough, that, within broad limits, management should be free to provide whatever training and educational services it chooses. It leaves open the question, however, how enthusiastically we should welcome a development which makes it possible that a modern-day Horatio Alger "can attend high school, complete college, and go on to a master's degree — even a doctorate — all under the watchful eye of the corporation, counseled and encouraged all the way" (p. 127). This reader's concern on this score is not allayed by the description of a course in human relations which is intended to "inculcate favorable attitudes," and which argues for "the democratic approach" as "the most effective method for creating a spirit of cooperation and a desire on the part of individual workers to apply themselves to the job at hand" (pp. 69, 75).

The middle part, (which constitutes most of the book), is taken up with descriptions of the types of program which corporations conduct and with summaries of sample courses. Here the scholarly quality of the report falls off, to the point where the line between data and interpretation becomes unclear. In the summaries of courses, the writing ceases to be narrative, and the text reads as if it were a record of the classroom teaching itself. The authors appear to have seized the opportunity to pass along their own views on such things as the rating of employees, communication within a plant, or principles of economics. In what is supposed to be a summary of a pamphlet on taxation, to cite the most striking example, we read this:

> . . . Everyone wants fair taxation, but just what is fair? Should taxes be based on what is earned, what is owned, on amounts involved in sales, or something else? Then again, consider the question of apportionment of taxes . . . (pp. 113-114).

Sudden switches from the description of teaching programs and materials to teaching itself may disconcert the reader enough, but when he finds he has doubts about the correctness of what is taught, he is likely to be even further annoyed. To take instances within fields with which the author has some acquaintance: the doctrine that "democratic" management and considerate personnel practices correlate with high productivity has been shown to be a glib oversimplification; the statement that "games that call for some sort of creative exercise can help limber up the mind for creative thinking" (p. 105) may hide a truth but sounds on the face of it like nonsense; and there is at least some disagreement about the flatly-enunciated view that "business competition is the most powerful stimulant yet devised for assuring the continuous progress of our economy" (p. 109). The excellent description given of Johnson and Johnson's course for supervisors, on the other hand, can make interesting and even exciting reading for the person in administration or teacher education who is concerned with the same general problems.

Perhaps because of the difference of purpose which distinguishes classrooms in factories from classrooms in the schools, there seems to be disappointingly little except in respect to method, for ordinary school people to learn from the corporation activities described in the book. One of the few stimulating findings is the variety of arrangements for the abstract and the practical phases of study which corporation programs offer. At the General Shoe Corporation, the first courses taken focus on "orientation and material having to do specifically with the company and its products" (p. 30), but as the student advances his work becomes more and more general. In another corporation the first six months of a training program for administrators are fairly academic and the ensuing three practical. At a third place a brief orientation is followed by machine-shop practice, then by classroom work, then by project assignments alternated with classroom work.

One implication for school people rests in the value which industry seems to attach to orientation courses for new employees. Reflecting upon it, we may be stimulated to take a hard look at the way we orient adolescents as they come into our larger secondary schools or colleges.

When it comes to finding what is for us the broader meaning of the rise of the classroom in the factory, the authors give little help. They suggest — with apparent satisfaction — that this new development may eventuate in a blending into one another of school education and factory education and see support for this in the growth of school-sponsored work study programs. There remains, however, the logical distinction between a program controlled by educational authorities presumably in the interests of the individual and one controlled by a corporation and conducted presumably in the interests of the corporation. It is unfortunate, therefore, that the book suggests nothing about how this distinction may condition and limit what blending may come about, or indeed that which already has.

Another interesting question which the book does not take up is: what influence can the "educational" trend in the factories be expected to have on the vocational trend in the schools? It could well be argued that over the decades an important cause establishing vocational training in the high school and the college has been the absence of classrooms in the factories. May not the establishment of these new classrooms make large-scale vocational education at public expense something of an anachronism? If so, may not the school in the coming years be more able to plan a work-study program, or indeed a whole curriculum, which will better provide for the development of the person and the citizen?

EDWARD T. LADD
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***The American Two-Year College,* Tyrus Hillway. Harper & Brothers, New York, 1958. 276 pp. $3.75.**

American higher education is now embarking upon an era that will be marked by an explosion in enrollment. Extending far into the foreseeable future, this expansion will undoubtedly alter the face and substance of college life. There will be not only more students and more and larger colleges, but also new kinds of colleges, as well as new definitions of college-going. The structure of higher education will be more complex, with task differentiation among public colleges and universities widening the differences presently found among colleges in student ability, faculty orientation, and program excellence. One enterprise due to assume a major role is the two-year college.

Already in some states, notably California, the public junior college is handling very large numbers of thirteenth and fourteenth grade students. Here is a relatively new form of educational organization about which information and insight are needed. What is the character of the public junior college? Who controls it, how are its programs determined, and what can it do and not do? These are a few of the things we need to know, and such questions set a framework within which to consider the book at hand.

The American Two-Year College "seeks to answer the basic essential questions relating to this type of institution," as well as serve as a textbook in education courses (p. x). Its content is comprehensive. The first three chapters consider the nature, development, and goals of the two-year college. Different kinds of two-year agencies are identified — university branches, technical institutes, private junior colleges — but it is made clear that the public community college is numerically and ideologically the central concern. The following ten chapters in the book deal with aspects of the junior college: students, general and vocational education, cooperative and adult education, guidance and student welfare, student organization and athletics, teachers and administration, legal status and accreditation, buildings and record-keeping, the community college survey, and problems and patterns of the future.

Throughout, the discussion is based on the author's personal experience and his reading of the junior college literature. On many topics where there is no research literature, the author depends entirely on opinion. However, he does present factual statements from which, presumably, a reader new to the junior college would learn something. Useful descriptions are found in the early chapters on origin and growth and on the major alternative forms of junior college control.

Unfortunately, the occasional straightforward description does not carry the day either for classroom use or general explanation of the nature of the junior college. The book is seriously weakened by the extent to which preference and exhortation are fused with description and analysis. This leads to characteristic difficulties. Preference colors description and statements of preference appear in the guise of statements of fact. As an example, we learn from Hillway that "an educational movement as widespread and fast-growing as that of the junior and community college must be founded upon clear ideas as to its aims and functions" (p. 61). If true, this would be a useful principle in the sociology of social movements, but there is no evidence that it is true for the junior college or for movements generally. One makes such an assertion without evidence when he wants to believe, and to convince others, that growth comes from goodness — from clarity of purpose, in this case.

Another example of the fact-preference confusion lies in the author's definition of "functions" of the two-year college. Included among a dozen functions discussed is "the function of superior teaching" (p. 66). This is not a demonstrable fact but rather a part of junior college doctrine. While the author admits that there is no clear evidence on this point, he makes the assertion and reinforces the ideology. The discriminating question of superior teaching for what kinds of students and toward what ends is not raised, nor does he admit that junior college staffs may vary enormously in teaching competence.

The control exerted over Hillway's presentation by preference and exhortation also contributes to an avoidance of problems intrinsic to the present place and role of the junior college, especially where dilemmas of action may in any way reflect unfavorably. Admissions policy is one example. Although a twelve-page discussion of athletics is made available, there is no section on admissions. The index lists only one related reference on "admissions counseling," which appears in a chapter on guidance and personnel services; and admissions practices are touched upon only here and there in an off-handed way. To understand the American junior college it is necessary above all to understand the consequences of various admissions policies.

The comprehensive public junior college is committed to non-selectivity. Under a philosophy of the open-door, all are to be admitted. What follows? Among other things, there is commonly a greater range of student ability and a lower average ability level than is found in selective colleges. With this comes a problem of status: how to be non-selective and still compare favorably with selective colleges. Tagged as "college," the junior college cannot escape being measured against other types of colleges by educators and the general public. The status problem plagues junior college administrators and is not to be avoided. It is also true of the comprehensive junior college that through the open-door streams a large number of students who want to transfer to senior colleges but who will not be able to do so. The junior college must then grapple with the problem of transforming the intentions of students and getting them to accept a lesser goal, a two-year effort. The "transfer student" who is a latent terminal is very much the heart of the matter, but a recognition of his existence, let alone a discussion of organizational consequences, is nowhere to be found in Hillway.

These harsh comments are meant to suggest that the Hillway book is an extreme case of what so often occurs in educational writing, — a picture is given us of reality as interpreted by positive thinking. Future junior college teachers and administrators, state and local educational authorities, laymen at large — all are led to see the junior college as innocent and pure and as the best of all possible worlds. In place of real organizations we get utopian images. The future junior college teacher who bases his expectations on Hillway is in for quite a shock when he meets his first classes. Perhaps the greatest disservice of the positive-thought book in education is to the future participant. However, truth is also badly served and the public image of the intelligence and responsibility of educators is adversely affected. What is to be made of a claim that the community college "probably constitutes the most significant contribution which our nation has made to the entire history of education" (p. ix), except that with proper perspective or with a closer regard for what actually warrants assertion, the statement would simply not be made?

It would be much nicer to say that this is a good and useful book and to recommend it to colleagues and students. But it is not so, and it cannot be recommended. The book is a disappointing contribution to Harper's Exploration Series in Education.

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***Public Education in America*, Edited by George E. Bereday and Luigi Volpicelli. Harper & Brothers, New York, 1958. 209 pp. $4.00.**

Though *Public Education in America* was expressly intended to explain American education to foreign audiences, it should prove equally valuable to American students. The book is the result of a symposium on American education undertaken at the invitation of Professor Volpicelli of the University of Rome and covers a wide range of topics, extending from philosophical theory to the uses of television in education. A regrettable lack, however, is the omission of a chapter on teacher training or on the place of the teacher in America today.

The contributions of the many authors vary in importance, of course, but, as Professor Robert Ulich is quoted as saying, the book is "one of the best introductions, if not the best, into the present American educational scene. Certainly it is the most handy and clearly organized source of information for teachers and the public at large." The entire picture of the public school and its problems is presented briefly and in proper perspective, with enough historical background to explain the emergence of present issues — and sufficient presentation of those isues so that clarification of them is possible.

For my own part, I found especially valuable the article by R. Freeman Butts on "Basic Features of American Education," the article on "Philosophical Theories of American Education" by I. L. Kandel, I. James Quillen's "The Curriculum and Attacks of the Public Schools," the article on "Local Pressures on the Public School Superintendent" by Neal Gross, and William Stanley's article entitled "Change and Continuity in American Education."

In the first and one of the best articles, Mr. Butts says of liberalized methods of education:

> Despite criticism of newer pedagogical methods, it has become clear that learning is most successful when the student sees a vital connection between himself and the activities of the school. Education and discipline are best when the learner is actively involved in the educative process and when the learning process is challenging, satisfying, and exciting rather than dull and dreary. Careful research studies have shown unmistakably that children learn as much if not more of traditional subject matter under the newer methods and in addition are more competent in personal and social affairs (p. 13).

In fifteen condensed pages, Dr. Kandel manages to clarify the philosophical theories that have influenced American education and, furthermore, throws some of John Dewey's main theses into clear perspective. In his discussion of Dewey's philosophy (p. 27), he says, "The older methods of imposition from without led to conformity and docility; the methods of experimentalism or instrumentalism encouraged creativity, initiative and originality." He further points out that opposition to pragmatic trends was shown by such men as William Bagley of Teachers College, Herman Horne of New York University, Michael Demiashkevitch of Peabody, Ernest Horn of the University of Iowa, and himself. Here, then, is no special pleading, but the attempt to set forth in an objective manner the various philosophical theories that have played major roles in directing the thinking of American educators.

The last chapter in the book, by William O. Stanley, shows deep insight, is clear and forceful, and is, for me, one of the best articles in the entire book. Mr. Stanley, at one point in his article (p. 193), says, "It is the thesis of this paper that the fundamental causes of the widespread public disturbance about public education in the United States will be found in the profound conflicts, tensions, and anxieties of our times." Later he points out that ". . . the ultimate roots of the crisis lie in the intellectual and moral realm" and that the ". . . basic difficulty is that men are divided and confused about ends as well as means. Where society is confused, so is education."

Fortunately, I had finished reading the book before reading a review of it by Edward D. Eddy, Jr. in the *Saturday Review* of September 13, 1958. I find myself in considerable disagreement with Mr. Eddy. He starts his review by saying, "In this volume the professional educator jumps to the defense of the American system of education." This tells one more about Mr. Eddy than it tells about the volume. It is difficult to see the book as a defense of anything. In fact, if Mr. Eddy knew the authors, he would know that Dr. Kandel has been a severe critic of American educational trends. Mr. Eddy seems to think the book damned at the outset by the fact that nine of the articles were written by faculty members of Teachers College, Columbia.

This little volume will not supply the reader with all the answers to the problems of our times, but it will deepen his understanding, challenge some of his prejudices, and give him ground for hope that the patient (the American public school) is not as hopelessly ill as a few hovering undertakers would have us believe.

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UNESCO: Purpose, Progress, Prospects, Walter H. C. Laves and Charles A. Thomson. Indiana University Press, Bloomington, 1957. xxvi + 469 pp. $7.50.

In 1957, UNESCO celebrated its tenth birthday and in 1958, it occupied its new home in Paris. In the present volume the authors tell the story of the origin, growth, and development – and recount the problems and achievements — of that noble and unique organization's first decade. They tell the story step by step, and they tell it well, in quiet voice, permitting the solid achievements of UNESCO to speak for themselves — and those achievements speak with an eloquence that could hardly be surpassed. Apart from its value as a history of one of the most important organizations of the United Nations, the book (which is in no sense an official history) will be of particular value to those who desire to learn something about the nature of those achievements.

UNESCO, for an organization which is so much in the public eye, is very innocent of the ways of publicity. It has never publicized itself or its works, and it has often been said that its one failure has been in not letting the world know what its remarkable achievements have been. But good wine needs no bush, and the good work of UNESCO will eventually establish its reputation throughout the world. Meanwhile, it is good to have a record of the work done, and to some extent the present volume fills that need. To give even an elementary account of the wonderful work that UNESCO has already done would be an immense labor in itself and fill many volumes. For those interested in a brief account of UNESCO'S accomplishments, Laves and Thomson's book is the answer.

Since both authors have been closely associated with UNESCO from its inception, there could scarcely have been a better choice of men to guide the diligent inquirer through the complex maze of UNESCO's organization and work.

The purpose of UNESCO is to contribute to peace and security by advancing knowledge, promoting human welfare, and developing international understanding. As the authors point out, it is perhaps too early to appraise the accomplishments of UNESCO. "Considerably more than a decade is required for the maturing of program ideas and program methods, and for projects to have a measurable impact." Nevertheless, if one asks: In what areas UNESCO has been most effective; how well has it served its members; and what are its prospects for the future, the answers are on the whole more than gratifying.

UNESCO has facilitated communication between scholars and scientists through the publication of an immense amount of material of every kind and through fellowships, travel grants, conferences, symposia, and the like. It was the principal instrument in securing the Universal Copyright Convention, in securing agreements reducing obstacles to trade and exchange of educational, cultural, and scientific materials, and in reducing postal, telegraph and freight rates on news and printed matter.

Among the few nations that have failed to ratify or implement these agreements is, of course, the United States. Just as we were the last of the civilized countries to found an SPCA (Society for the Prevention of Cruelty to Animals), the last to join the Red Cross, and the first to sabotage The League of Nations, so we are likely to be among the last to do what we ought. Where freedom tends so much to be equated with economic libertinism, it is hardly likely that those who migrate into government will recognize the Actonian principle that freedom is not the the liberty to do what you like, but the right to be able to do what you ought.

The attitude of the American to UNESCO has been far from what it ought to be, and the hostility that the very name arouses in some parts of the country is a shocking commentary on the present educational status of many Americans. When the writer of this review arrived in a small town in southwestern Texas to deliver a lecture on some innocuous subject, he was greeted by his host with a newspaper clipping in which it was stated that the local branch of the DAR had met the previous day and had unanimously voted to appeal to his sponsors to cancel his lecture on the ground that the speaker was connected with that "subversive organization known as UNESCO." Well, there are at least two good Americans who believe in UNESCO, and they have written a very fine book about it, which can be unreservedly recommended to readers everywhere. The authors are to be congratulated upon having brought off an extremely difficult task with eminent success.

Ashley Montagu

Teaching Science to the Ordinary Pupil, K. Laybourn and C. H. Bailey. Philosophical Library, New York, 1957. 415 pp. Numerous illustrations. $5.00. Buckram Edition, $10.00.

In England approximately three-fourths of the children are separated from the academically promising at age eleven and continue their education in the Modern Secondary Schools or in the few Comprehensive Schools until the school-leaving age of fifteen. The question of what science to teach these "ordinary pupils", and how to teach it, has been of major concern to educators in England for some time. In 1950, a committee was set up in Manchester to consider the content of science teaching in these non-academic secondary schools. The group included head teachers, science specialists, and two members of teachers college staffs.

Although the individual teacher in England has a great deal of freedom in his classroom, and, in fact, each headmaster is solely responsible for the total program offered in his school, there appeared to be general agreement among the committee members that the science taught to non-academic pupils should be based on the student's personal experience. Consequently, as guiding principles for their deliberations, the committee agreed that:

1. The pupil's own experience should be the main guide.
2. The subject-matter should deal primarily with objects and only secondarily with principles. Only in this way can the principles be established with the pupils we have in mind.
3. A very wide treatment is desirable, extending over the conventional subject boundaries.
4. The content must be such as will provide ample training in looking carefully at objects and events and in dealing with practical situations (p. 6).

One result of the committee's work is this volume, the principal purpose of which is "to show how every part of the subject-content can be treated experimentally, with the major emphasis on practical work by the pupils themselves" (p.7). The content, ranging from "the air" to "how life is handed on", is grouped into twenty-five categories. Academic subject boundaries are crossed when the topics require information from several areas. The book contains five hundred and thirty-six simple experimental set-ups that any teacher can organize, and many can be arranged by the pupils with little need for teacher attention. While no claim is made for novelty, many of the experiments "have an original twist designed to make them more suitable for the ordinary pupil" (p.7). Each experiment has been tested. If the expected results are not obtained, teachers are advised to check their equipment against the descriptions and diagrams before writing to the authors.

Chapter introductions consider a variety of topics: practical comments about the materials, some history of the subject, terse observations on the type and amount of science necessary for everyone, and observations on classrooms approaches. At pertinent places are listed related topics through which exploration or ties to common experience could be made. The appendix contains lists of useful "scrap and waste materials" and "of materials usually available at home or at school or which may be collected or bought locally."

In some ways the volume is similar to the *General Science Handbook*[1], of the State of New York, which suggest experimental set-ups for topics in the New York Syllabus for General Science. However, this volume includes word descriptions of each set-up, as well as carefully labled diagrams of the equipment. What is lacking is an indication of the general aspects of scientific inquiry that could be illustrated through the experiences described.

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FLETCHER G. WATSON
Harvard University

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[1] *General Science Handbook (Parts I, II, and III).* Bureau of Curriculum Development, Division of Secondary Education, New York State Department of Education.

Another example of the fact-preference confusion lies in the author's definition of "functions" of the two-year college. Included among a dozen functions discussed is "the function of superior teaching" (p. 66). This is not a demonstrable fact but rather a part of junior college doctrine. While the author admits that there is no clear evidence on this point, he makes the assertion and reinforces the ideology. The discriminating question of superior teaching for what kinds of students and toward what ends is not raised, nor does he admit that junior college staffs may vary enormously in teaching competence.

The control exerted over Hillway's presentation by preference and exhortation also contributes to an avoidance of problems intrinsic to the present place and role of the junior college, especially where dilemmas of action may in any way reflect unfavorably. Admissions policy is one example. Although a twelve-page discussion of athletics is made available, there is no section on admissions. The index lists only one related reference on "admissions counseling," which appears in a chapter on guidance and personnel services; and admissions practices are touched upon only here and there in an off-handed way. To understand the American junior college it is necessary above all to understand the consequences of various admissions policies.

The comprehensive public junior college is committed to non-selectivity. Under a philosophy of the open-door, all are to be admitted. What follows? Among other things, there is commonly a greater range of student ability and a lower average ability level than is found in selective colleges. With this comes a problem of status: how to be non-selective and still compare favorably with selective colleges. Tagged as "college," the junior college cannot escape being measured against other types of colleges by educators and the general public. The status problem plagues junior college administrators and is not to be avoided. It is also true of the comprehensive junior college that through the open-door streams a large number of students who want to transfer to senior colleges but who will not be able to do so. The junior college must then grapple with the problem of transforming the intentions of students and getting them to accept a lesser goal, a two-year effort. The "transfer student" who is a latent terminal is very much the heart of the matter, but a recognition of his existence, let alone a discussion of organizational consequences, is nowhere to be found in Hillway.

These harsh comments are meant to suggest that the Hillway book is an extreme case of what so often occurs in educational writing, — a picture is given us of reality as interpreted by positive thinking. Future junior college teachers and administrators, state and local educational authorities, laymen at large — all are led to see the junior college as innocent and pure and as the best of all possible worlds. In place of real organizations we get utopian images. The future junior college teacher who bases his expectations on Hillway is in for quite a shock when he meets his first classes. Perhaps the greatest disservice of the positive-thought book in education is to the future participant. However, truth is also badly served and the public image of the intelligence and responsibility of educators is adversely affected. What is to be made of a claim that the community college "probably constitutes the most significant contribution which our nation has made to the entire history of education" (p. ix), except that with proper perspective or with a closer regard for what actually warrants assertion, the statement would simply not be made?

It would be much nicer to say that this is a good and useful book and to recommend it to colleagues and students. But it is not so, and it cannot be recommended. The book is a disappointing contribution to Harper's Exploration Series in Education.

BURTON R. CLARK
University of California (Berkeley)

***Public Education in America*, Edited by George E. Bereday and Luigi Volpicelli. Harper & Brothers, New York, 1958. 209 pp. $4.00.**

Though *Public Education in America* was expressly intended to explain American education to foreign audiences, it should prove equally valuable to American students. The book is the result of a symposium on American education undertaken at the invitation of Professor Volpicelli of the University of Rome and covers a wide range of topics, extending from philosophical theory to the uses of television in education. A regrettable lack, however, is the omission of a chapter on teacher training or on the place of the teacher in America today.

The contributions of the many authors vary in importance, of course, but, as Professor Robert Ulich is quoted as saying, the book is "one of the best introductions, if not the best, into the present American educational scene. Certainly it is the most handy and clearly organized source of information for teachers and the public at large." The entire picture of the public school and its problems is presented briefly and in proper perspective, with enough historical background to explain the emergence of present issues — and sufficient presentation of those isues so that clarification of them is possible.

For my own part, I found especially valuable the article by R. Freeman Butts on "Basic Features of American Education," the article on "Philosophical Theories of American Education" by I. L. Kandel, I. James Quillen's "The Curriculum and Attacks of the Public Schools," the article on "Local Pressures on the Public School Superintendent" by Neal Gross, and William Stanley's article entitled "Change and Continuity in American Education."

In the first and one of the best articles, Mr. Butts says of liberalized methods of education:

> Despite criticism of newer pedagogical methods, it has become clear that learning is most successful when the student sees a vital connection between himself and the activities of the school. Education and discipline are best when the learner is actively involved in the educative process and when the learning process is challenging, satisfying, and exciting rather than dull and dreary. Careful research studies have shown unmistakably that children learn as much if not more of traditional subject matter under the newer methods and in addition are more competent in personal and social affairs (p. 13).

In fifteen condensed pages, Dr. Kandel manages to clarify the philosophical theories that have influenced American education and, furthermore, throws some of John Dewey's main theses into clear perspective. In his discussion of Dewey's philosophy (p. 27), he says, "The older methods of imposition from without led to conformity and docility; the methods of experimentalism or instrumentalism encouraged creativity, initiative and originality." He further points out that opposition to pragmatic trends was shown by such men as William Bagley of Teachers College, Herman Horne of New York University, Michael Demiashkevitch of Peabody, Ernest Horn of the University of Iowa, and himself. Here, then, is no special pleading, but the attempt to set forth in an objective manner the various philosophical theories that have played major roles in directing the thinking of American educators.

The last chapter in the book, by William O. Stanley, shows deep insight, is clear and forceful, and is, for me, one of the best articles in the entire book. Mr. Stanley, at one point in his article (p. 193), says, "It is the thesis of this paper that the fundamental causes of the widespread public disturbance about public education in the United States will be found in the profound conflicts, tensions, and anxieties of our times." Later he points out that ". . . the ultimate roots of the crisis lie in the intellectual and moral realm" and that the ". . . basic difficulty is that men are divided and confused about ends as well as means. Where society is confused, so is education."

Fortunately, I had finished reading the book before reading a review of it by Edward D. Eddy, Jr. in the *Saturday Review* of September 13, 1958. I find myself in considerable disagreement with Mr. Eddy. He starts his review by saying, "In this volume the professional educator jumps to the defense of the American system of education." This tells one more about Mr. Eddy than it tells about the volume. It is difficult to see the book as a defense of anything. In fact, if Mr. Eddy knew the authors, he would know that Dr. Kandel has been a severe critic of American educational trends. Mr. Eddy seems to think the book damned at the outset by the fact that nine of the articles were written by faculty members of Teachers College, Columbia.

This little volume will not supply the reader with all the answers to the problems of our times, but it will deepen his understanding, challenge some of his prejudices, and give him ground for hope that the patient (the American public school) is not as hopelessly ill as a few hovering undertakers would have us believe.

MATHEW PAGE GAFFNEY
Harvard University

UNESCO: Purpose, Progress, Prospects, Walter H. C. Laves and Charles A. Thomson. Indiana University Press, Bloomington, 1957. xxvi + 469 pp. $7.50.

In 1957, UNESCO celebrated its tenth birthday and in 1958, it occupied its new home in Paris. In the present volume the authors tell the story of the origin, growth, and development — and recount the problems and achievements — of that noble and unique organization's first decade. They tell the story step by step, and they tell it well, in quiet voice, permitting the solid achievements of UNESCO to speak for themselves — and those achievements speak with an eloquence that could hardly be surpassed. Apart from its value as a history of one of the most important organizations of the United Nations, the book (which is in no sense an official history) will be of particular value to those who desire to learn something about the nature of those achievements.

UNESCO, for an organization which is so much in the public eye, is very innocent of the ways of publicity. It has never publicized itself or its works, and it has often been said that its one failure has been in not letting the world know what its remarkable achievements have been. But good wine needs no bush, and the good work of UNESCO will eventually establish its reputation throughout the world. Meanwhile, it is good to have a record of the work done, and to some extent the present volume fills that need. To give even an elementary account of the wonderful work that UNESCO has already done would be an immense labor in itself and fill many volumes. For those interested in a brief account of UNESCO'S accomplishments, Laves and Thomson's book is the answer.

Since both authors have been closely associated with UNESCO from its inception, there could scarcely have been a better choice of men to guide the diligent inquirer through the complex maze of UNESCO's organization and work.

The purpose of UNESCO is to contribute to peace and security by advancing knowledge, promoting human welfare, and developing international understanding. As the authors point out, it is perhaps too early to appraise the accomplishments of UNESCO. "Considerably more than a decade is required for the maturing of program ideas and program methods, and for projects to have a measurable impact." Nevertheless, if one asks: In what areas UNESCO has been most effective; how well has it served its members; and what are its prospects for the future, the answers are on the whole more than gratifying.

UNESCO has facilitated communication between scholars and scientists through the publication of an immense amount of material of every kind and through fellowships, travel grants, conferences, symposia, and the like. It was the principal instrument in securing the Universal Copyright Convention, in securing agreements reducing obstacles to trade and exchange of educational, cultural, and scientific materials, and in reducing postal, telegraph and freight rates on news and printed matter.

Among the few nations that have failed to ratify or implement these agreements is, of course, the United States. Just as we were the last of the civilized countries to found an SPCA (Society for the Prevention of Cruelty to Animals), the last to join the Red Cross, and the first to sabotage The League of Nations, so we are likely to be among the last to do what we ought. Where freedom tends so much to be equated with economic libertinism, it is hardly likely that those who migrate into government will recognize the Actonian principle that freedom is not the the liberty to do what you like, but the right to be able to do what you ought.

The attitude of the American to UNESCO has been far from what it ought to be, and the hostility that the very name arouses in some parts of the country is a shocking commentary on the present educational status of many Americans. When the writer of this review arrived in a small town in southwestern Texas to deliver a lecture on some innocuous subject, he was greeted by his host with a newspaper clipping in which it was stated that the local branch of the DAR had met the previous day and had unanimously voted to appeal to his sponsors to cancel his lecture on the ground that the speaker was connected with that "subversive organization known as UNESCO." Well, there are at least two good Americans who believe in UNESCO, and they have written a very fine book about it, which can be unreservedly recommended to readers everywhere. The authors are to be congratulated upon having brought off an extremely difficult task with eminent success.

Ashley Montagu

***Teaching Science to the Ordinary Pupil*, K. Laybourn and C. H. Bailey. Philosophical Library, New York, 1957. 415 pp. Numerous illustrations. $5.00. Buckram Edition, $10.00.**

In England approximately three-fourths of the children are separated from the academically promising at age eleven and continue their education in the Modern Secondary Schools or in the few Comprehensive Schools until the school-leaving age of fifteen. The question of what science to teach these "ordinary pupils", and how to teach it, has been of major concern to educators in England for some time. In 1950, a committee was set up in Manchester to consider the content of science teaching in these non-academic secondary schools. The group included head teachers, science specialists, and two members of teachers college staffs.

Although the individual teacher in England has a great deal of freedom in his classroom, and, in fact, each headmaster is solely responsible for the total program offered in his school, there appeared to be general agreement among the committee members that the science taught to non-academic pupils should be based on the student's personal experience. Consequently, as guiding principles for their deliberations, the committee agreed that:

1. The pupil's own experience should be the main guide.
2. The subject-matter should deal primarily with objects and only secondarily with principles. Only in this way can the principles be established with the pupils we have in mind.
3. A very wide treatment is desirable, extending over the conventional subject boundaries.
4. The content must be such as will provide ample training in looking carefully at objects and events and in dealing with practical situations (p. 6).

One result of the committee's work is this volume, the principal purpose of which is "to show how every part of the subject-content can be treated experimentally, with the major emphasis on practical work by the pupils themselves" (p.7). The content, ranging from "the air" to "how life is handed on", is grouped into twenty-five categories. Academic subject boundaries are crossed when the topics require information from several areas. The book contains five hundred and thirty-six simple experimental set-ups that any teacher can organize, and many can be arranged by the pupils with little need for teacher attention. While no claim is made for novelty, many of the experiments "have an original twist designed to make them more suitable for the ordinary pupil" (p.7). Each experiment has been tested. If the expected results are not obtained, teachers are advised to check their equipment against the descriptions and diagrams before writing to the authors.

Chapter introductions consider a variety of topics: practical comments about the materials, some history of the subject, terse observations on the type and amount of science necessary for everyone, and observations on classrooms approaches. At pertinent places are listed related topics through which exploration or ties to common experience could be made. The appendix contains lists of useful "scrap and waste materials" and "of materials usually available at home or at school or which may be collected or bought locally."

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Equality of Educational Opportunity

Myron Lieberman

Learning and Thinking

Jerome S. Bruner

Volume Twenty-Nine
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THE EDITORS

Equality of Educational Opportunity

The problems raised by the Supreme Court integration decision of 1954 have provoked much discussion about the nature of "equality of educational opportunity." Professor Lieberman in the following article—shortly to be published by the University of Illinois Press in a volume entitled Essays in the Language of Education—discusses this important problem from a theoretical point of view and suggests two cogent meanings for the concept.

Myron Lieberman, B.S. (Minnesota) and Ph.D. (Illinois), formerly a Professor of Education at Yeshiva University in New York City, is currently the Director of Basic Research for the Educational Research Council of Greater Cleveland. He is the author of Education as a Profession (1956) and of The Future of Public Education, to be published in January, 1960.

MYRON LIEBERMAN

FEW CONCEPTS IN THE FIELD OF EDUCATION have been the subject of as much confusion as the concept of equality of educational opportunity. One reason for this is the fact that disagreement over the meaning of equality of educational opportunity underlies much of the controversy over racial segregation in public education. Despite the Supreme Court decisions in the segregation cases, there is a continuing controversy over whether it is possible to provide equality of educational opportunity by means of a system of racially segregated schools. A great deal of this controversy is really over what is or what should be regarded as equality of educational opportunity.

The controversy over racial segregation is not the only context in which it is important to clarify the meaning of "equality of educational opportunity." It has been contended that as long as education is financed largely through state and local taxes, differences in the taxable resources of states and communities will result in inequality of educational opportunity. Thus the perennial campaign for federal aid to education is based primarily on the argument that such aid is necessary "to equalize educational opportunity." The reader is undoubtedly aware of other contexts which suggest the fundamental importance of the concept.

THE LEGAL MEANING

We may profitably begin by analyzing the meanings which have been given to equality of educational opportunity in some recent legal cases. A legal analysis of equality of educational opportunity is not the same thing as a philosophical analysis of it. Nevertheless, while others have merely speculated on the meaning of equality of educational opportunity, the courts have had the responsibility of deciding in concrete cases whether there was or was not equality of educational opportunity. In carrying out this responsibility, they have been under great pressure to formulate definite criteria which would enable them to settle these cases. Indeed, the analyses of equality in legal literature are probably more sophisticated than the analyses of it in educational literature.

Legally, cases involving equality of educational opportunity involve interpretation of that part of the 14th Amendment which reads "...nor shall any state...deny to any person within its jurisdiction the equal protection of the laws." In the first case to be considered, Murray, a Negro plaintiff, sought to enter the law school at the University of Maryland.[1] At the time Murray filed his suit, the state of Maryland had no separate law school for Negroes, but provided a scholarship to any out of state law school which would accept Negro students from Maryland. In its decision, the Maryland Supreme Court asserted that the provision for out of state scholarships still left Murray at a substantial practical disadvantage vis-a-vis' qualified white students in pursuing a legal education. For example, the scholarship was not sufficient to defray the moving costs which Murray would have had to pay but which would have been avoided by the white students who were able to enroll at the University of Maryland Law School. The court also pointed out that there were certain nonfinancial advantages to study in the state law school for someone intending to practice in the state. These would not be available to Murray as they would be to white students. In the light of these inequalities, the Maryland court ruled that Murray could not be denied admission to the University of Maryland Law School because he was a Negro. Two years later, with two justices dissenting, the United States Supreme Court made a similar ruling in a case involving a Negro plaintiff who sought admission to the law school at the University of Missouri.[2]

Philosophically, the Murray case is especially interesting because the Maryland court did not insist upon absolute equality in reaching its decision. The court stated that there was not only "factual inequality" but that it was below "substantial equality." The implication of these statements was that some factual inequalities do not constitute substantial inequality, that is, would not violate the constitutional requirement of equal protection of the laws.

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[1] Pearson v. Murray, 169 HI/Md. 478, 182 A. H. 590 (1936).

[2] Missouri ex rel Gaines v. Canada, 305 U.S. 337, 59 Sup. Ct. 232, 83 L. Ed. 208 (1938).

The distinction between inequality *per se* and "substantial" inequality came in for closer scrutiny when the courts had to decide whether the segregated facilities provided Negro students *within* a state were substantially equal to those provided white students. This was the issue in the Sweatt case, decided in 1950.[3] Sweatt, a Negro, applied for admission to the University of Texas Law School in 1946. The state court ruled that he was entitled to relief, but gave the state of Texas six months to establish a separate law school for Negroes substantially equal to the one for white students at the University of Texas. Sweatt refused to enroll at the Negro law school and sued for admission to the University of Texas Law School. Thus the Supreme Court had to decide whether Sweatt enjoyed equal protection of the laws because he could attend the newly created Negro law school. Its decision that Sweatt did not enjoy equal protection of the laws under these circumstances was based upon certain inferiorities of the Negro law school, some of which will be discussed later in this essay.

Equality of educational opportunity also involves the kind of treatment a student receives once he has been admitted to an educational institution. Partly for this reason, the McLaurin case, decided the same day as Sweatt v. Painter, is of considerable interest.[4] In this case, the University of Oklahoma had been forced to admit one McLaurin, a Negro. However, after admitting McLaurin, the University tried to segregate him. His seats in the classroom and his tables in the library and cafeteria were roped off to preserve racial segregation within the University. In its decision, the Supreme Court prohibited the University from treating McLaurin in this way merely because he was a Negro. The Court asserted that the restrictions placed upon McLaurin "impair and inhibit his ability to study, to engage in discussions and exchange views with other students, and, in general, to learn his profession."

Since McLaurin was in the same classroom as the white students, listened to the same instructors give the same lectures, studied in the same library, used the same cafeteria, etc., there was no question that the physical facilities provided him were equal to those provided the white students. Thus the ruling in this case made it clear that *from a legal point of view* at least, procedural equality *within* an educational institution, as well as procedural equality in the determination of who shall be admitted to the institution, is an important ingredient of equality of educational opportunity. This clearly corresponds to common sense. If two students are admitted to law school, and one must achieve an average grade of 70 and the other an average grade of 95 to be graduated, there is hardly equality of educational opportunity between them.

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[3] Sweatt v. Painter, 339 U.S. 629, 70 Sup. Ct. 848, 19 L. Ed. 1114 (1950).

[4] McLaurin v. Board of Regents, 339 U.S. 637, 70 Sup. Ct. 851, 94 L. Ed. 1149 (1950).

In most school systems, grades are given on the basis of achievement. There are others, however, in which grades are given on the basis of achievement *in relation to ability*. Where the latter practice prevails, able students must perform better than average students in order to get the same grade as the average students for a specified level of achievement. Whether such a procedure constitutes procedural inequality depends upon whether there is any independent justification for using this grading system and the use made of the grades. If there is such justification, and if the grades are used properly, there would not be inequality. After all, in this situation, the grades themselves mean something different than the grades ordinarily given. They do not mean simply a level of achievement but a level of achievement in relation to ability. Thus the "A" of the gifted student actually *means* a higher level of achievement than the "A" of the less able student. Of course, there could be inequality in the application of this grading system, e.g., if the teacher did *not* insist upon a higher level of achievement from able students for the same grade given to less able students. The inequality would consist of ignoring the greater ability of the gifted students in making out grades.

The Sweatt and McLaurin cases clearly foreshadowed the result in the 1954 case of Brown v. Board of Education. In this case, there was a stipulation to the effect that the physical facilities in the white and Negro schools were equal. Nevertheless, the Supreme Court held that a segregated school system resulted in inequality of educational opportunity. While there is some justification for regarding this ruling as a change in the content of the law, it is only fair to point out that it was clearly in line with the prior decisions (in the Sweatt and McLaurin cases) that equality of educational opportunity could not be decided merely by reference to the comparability of the physical facilities made available to students.

From a philosophical point of view, the legal cases previously analysed are highly suggestive, but they leave many unresolved questions concerning the meaning of equality of educational opportunity. For one thing, the cases involve only such inequality as may result from a *governmentally imposed* requirement of racial segregation. The courts were not primarily concerned with equality of educational opportunity *per se*. They were concerned chiefly with the question of whether specific state laws relating to educational opportunity provided equal protection of the laws. However, most people do not ordinarily decide whether there is equality of educational opportunity solely by reference to whether A and B have the same *legal right* to go to a particular educational institution.

Furthermore, the courts had only to decide whether or not there was equal protection of the laws in specific cases. The judges were not legally compelled to give any reasons for their decisions. When they made a positive attempt to state what they meant by equality, the results were not too clear. As two legal authorities put it: ". . . . despite the number of lower court cases which were to consider the issue of school segregation, the courts were significantly unsuccessful in fashioning definite criteria to measure equality. All that the courts could or did say was that separate but equal required 'substantial' equality."[5]

PRACTICAL EQUALITY

In most of the legal cases involving equality of educational opportunity, the courts were forced to decide whether a Negro plaintiff excluded from a public school, or forced to attend it under regulations that did not apply to white students, enjoyed the equal protection of the laws. In reaching their decisions, the courts looked to the practical aspects of the situation. Thus in ruling that Sweatt had to be admitted to the University of Texas Law School, the Supreme Court pointed out that the newly established law school for Negroes did not have a library or faculty as adequate as the one at the University of Texas. The Court went on to say: "What is more important, the University of Texas Law School possesses to a far greater degree those qualities which are incapable of objective measurement but which make for greatness in a law school. Such qualities, to name but a few, include reputation of the faculty, experience of the administration, position and influence of the alumni, standing in the community, traditions, and prestige."

In other words, the Court was saying that unless certain practical advantages of the University of Texas Law School were available to the Negro students on the same terms as they were to white students, the resulting inequality of educational opportunity would violate the Constitutional requirement of equal protection of the laws. But it is important to note that there was no necessary reason why the judges had to rule as they did. That is, it is logically conceivable that they could have come to a different conclusion. Notice that in the Gaines case, two justices on the Supreme Court agreed that forcing Negro students to attend an out of state law school did not constitute unequal protection of the laws.

The relationship between legal equality of educational opportunity and practical equality of educational opportunity is thus a paradoxical one. From a practical point of view, the legal meaning of equality is extremely important. In practical terms, it makes an enormous difference whether or not you can be *legally* refused admission to an educational institution merely because of your race or because of some other factor unrelated to your ability. And the other aspect of the paradox is that in arriving at their legal decisions, the courts have, at least in the past few years, based their decisions upon the practical considerations involved.

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[5] Albert P. Blaustein and Clarence Clyde Ferguson, Jr., *Desegregation and the Law*. New Brunswick: Rutgers University Press, 1957, p. 103. The same thought is expressed in Robert A. Leflar and Wylie H. Davis, "Public School Segregation," 67 *Harvard Law Review*, 392 (1954).

In nonlegal usage, some persons regard the legal meaning of equality of educational opportunity as the measure of "equality of educational opportunity" without any adjectives or qualifications. In their view, whether equality exists depends solely upon whether there are any restrictions imposed by government upon A but not upon B. Inequalities resulting from social circumstance are either denied or deemed irrelevant to the meaning of equality of educational opportunity.

We should always recognize that the distinction between legal equality and practical equality is often an issue in fields other than education. For example, everyone is supposedly "equal before the law." Nevertheless, persons who can afford to employ the best counsel, hire expert witnesses, and appeal every adverse decision to a higher court are going to be more successful in their legal endeavors than persons who can do none of these things. Legal equality before the law is important and desirable, but it is not the same thing as practical equality before the law.

Let us next suppose that State X institutes an examination system for admission to high schools and colleges. The examinations are scrupulously administered. A passes the examination, but B, who possesses a greater academic aptitude than A, fails. B's failure is due to the fact that he had to work after school to support his family, that B's home was a poor place to study, and that B's parents never provided B with the eyeglasses which B needed to do his school work properly.

This situation is not altogether a hypothetical one. A number of states are in the process of introducing an examination system at various levels of their educational ladder. Even if the tests are fairly administered, they will serve to keep integration at a minimum because of the general cultural disadvantages which confront most Negro students. Since their parents have had less education than the average white parent, since their homes include a lower average number of books and magazines, since they have less medical and dental care than the average white student, since they generally have a less favorable home environment for study and academic achievement, the rate of failure will probably be much higher among Negro than among white students.

Note that there is full and complete *legal* equality of educational opportunity in this situation. Indeed, in principle, the situation does not differ from those that arise every day without any racial overtones whatsoever. Most examination systems work to the disadvantage of any student, regardless of race, whose life circumstances are not conducive to academic progress. A state university which utilizes an examination system to determine who shall be admitted is not acting illegally, but its procedures tend to favor students whose backgrounds were conducive to academic progress over students of equal or greater native ability whose backgrounds were unfavorable to such progress.

At this point, it becomes important to recognize that complete equality of educational opportunity is impossible. Not everyone can have the same teacher or live in the same home environment or travel the same distance to school, to mention just a few things that could be the basis of inequality of educational opportunity. The impossibility of complete equality tells us something about what people do not ordinarily mean when they say that there is equality of educational opportunity. They do not mean that there are no inequalities *whatsoever* pertaining to educational opportunity. Rather, they mean that some inequalities can be disregarded in judging whether there is or is not equality of educational opportunity.

The point can be illustrated in this way. Suppose that A lives one block from school and B lives six blocks away from it. Presumably A needs less time than B to go to and from school and thus has more time available for his studies. In common usage, however, we would hardly regard this inequality as a reason to assert inequality of educational opportunity between A and B. On the other hand, suppose B lived 60 miles away from the school. Then we might well assert that B lives so much farther away from school than A that B does not have equality of opportunity with A. As a matter of fact, research indicates that distance from an institution of higher learning is one of the important factors which go into a decision to attend or not to attend college. The growth of junior and community colleges is in part an effort to eliminate the distance from school factor in higher education.

Minor inequalities are thus disregarded in common usage. But at what point does an inequality cease to be minor? How much equalization is necessary before we are willing to say that there is equality of educational opportunity? The answer to this question varies widely from person to person, and this variation is partly responsible for the confusion over the meaning of "equality of educational opportunity."

A bit of historical perspective may help to clarify this point. At the time of the American Revolution, whether an individual received any formal education at all and what kind of an education he received were decisions for individuals and their families. Then some progress toward equalizing opportunity for education was made when public elementary schools were established and made compulsory. Later, equal opportunity for education was greatly facilitated by the establishment of public secondary schools. At the present time, the trend is to equalize opportunity for higher education.

We must note that equalization of educational opportunity, even at one level of education, was not and is not something achieved at one fell swoop. When the author attended high school in 1937, students in his school had to purchase their own textbooks. Some students were unable to purchase textbooks. Today, such textbooks are supplied by the school. Thus "ability to purchase textbooks" has been eliminated as a factor giving some students an advantage over others in securing a high school education. Likewise, many items of athletic equipment formerly supplied by the student are now supplied by the school. Thus there has been equalization of opportunity to play many interscholastic sports which were formerly restricted as a practical matter to students who could purchase the necessary supplies and equipment.

It is clear that we could do a great deal more to equalize educational opportunity at all levels. Theoretically, we might:

1. Remove all indirect costs of elementary and secondary education, e.g., supply through public funds all textbooks, supplies, athletic equipment, musical instruments, etc.
2. Remove all tuition costs from college training.
3. Remove all tuition costs from graduate and professional training.
4. Pay all students in full-time higher education a salary sufficient to defray their living expenses.
5. Provide intensive academic programs for children adjudged to be academically handicapped by their living conditions.
6. Remove all references to race, creed, or color in personnel records at every level of education.
7. Place all children aged 2-5 in state supported nursery schools to eliminate the differential effects of the home environment.
8. Provide specialized curriculums for many kinds of students who cannot profit from those currently provided.

The above list could be extended indefinitely. Some people might contend that we would not have "true" or "real" equality of educational opportunity until all these things and more were done. Others might contend that we need to carry out only one of these changes to achieve "equality of educational opportunity." Still others might contend that we need some but not all of these changes. Meanwhile, voices can be heard contending that we already have "equality of educational opportunity," and that there is no need to adopt any of these measures to achieve it.

Whichever of these points of view one accepts, clearly it is possible to eliminate many inequalities which are taken for granted. However, the equalizing process is limited in several ways, and a brief discussion of these ways will be helpful at this point.

We can take it for granted that every step toward equalization of educational opportunity involves at least some conflict with other values. The establishment of the public schools would not have been possible without the imposition of taxes opposed by at least some persons. Taxes for public schools, like all taxes, lessen the freedom which some persons have to spend their income as they see fit.

We tolerate, or even insist upon taxes, because we believe their over-all benefits outweigh their over-all disadvantages. If some individuals lose the freedom to spend their income as they see fit, others gain in freedom, e.g., they can provide their children with an education which would not be possible without tax supported schools. My point here is not that taxation to equalize educational opportunity is good, or that it is bad. Rather, the point is that such taxation, like all taxation, involves a weighing of advantages and disadvantages, of new restrictions and also of new freedoms. But clearly, each situation must be judged on its own merits. Thus we equalize educational opportunity by erecting school buildings and paying teachers salaries at public expense. We are ordinarily willing to supply textbooks, but not the supplies and services which would largely eliminate health factors in opportunity for education. We furnish all candidates for the football team with a football uniform, but each candidate for the tennis team must supply his own tennis racket. We remove direct tuition costs at the elementary and secondary levels but hesitate to eliminate them at the college and professional levels.

Much confusion results from the fact that many factors affecting equality of educational opportunity are not widely understood. For instance, many studies have shown that the out of pocket costs of a high school education can be quite substantial for children from low income families. This is especially the case when the school district furnishes very little in the way of services and supplies, such as textbooks, laboratory equipment, and so on. It is likely that if more people realize the difficulties which some students have in meeting these costs, and the part which these difficulties play in inducing some students to withdraw from school, there would be a much stronger tendency for people to say that we do not now have equality of educational opportunity.

This point also applies to extra-curricular activities which are legally open to all students. Studies have shown that there is considerable inequality here. For example, some students cannot afford to purchase tickets to interscholastic athletic contests or equipment needed to participate in a sport or other extracurricular activity. Some people are simply not aware of the extent to which this is the case. Others may be aware of it, but may not regard it as a cause for alarm. Still others may be more sensitive to the fact that such inequalities tend to increase the dropout rate among poorer students. Some persons may be quite disturbed by these inequalities but nevertheless believe that the funds needed to remove them could be better utilized in other ways. When people who have such a widely different grasp of the situation and who would be affected in widely different ways by measures designed to change it speak of "equality of educational opportunity," it is small wonder that they often talk past one another.

In some ways, it is surprising what people in the United States do not relate to equality in the school. Some countries require a school uniform in order to avoid inequalities in dress between students. In the United States, such a proposal would probably strike many people as totalitarian, especially since our experience with the "black shirts" of Mussolini and the "brown shirts" of Hitler. On the other hand, some sort of uniform is accepted in parochial schools throughout the United States, so perhaps there is some support in this country for the belief that equality of dress is an important ingredient of equality of educational opportunity. Nevertheless, probably few people think about student dress in their use of "equality of educational opportunity."

In the list of things that could be done to equalize educational opportunity, I mentioned the establishment of state supported nursery schools as a means of eliminating inequalities due to widely varying home conditions. Undoubtedly the cost of such schools constitutes an important reason why they are not regarded as feasible. Another reason is that the establishment of such schools on a compulsory basis would require drastic changes in our patterns of family life, patterns which the American people do not wish to give up. I mention this because it is important to recognize that an all-out attempt to equalize educational opportunity would inevitably threaten other important values. This is not said to discourage attempts to equalize educational opportunity. Rather, I wish only to emphasize that the process of equalization has other than financial limits.

Indeed, it would be well to recognize that there are absolute limits on equality of educational opportunity. No matter how many other values we are willing to sacrifice, no matter how much human and material resources we are willing to invest to insure equality of educational opportunity, there is always going to be an inescapable residue of inequality. If you eliminate the family completely and place all children at birth in state supported nursery schools, you must find a way to eliminate completely all inequalities between the nursery schools. This is as much of a practical impossibility as eliminating all inequalities resulting from differing home conditions. It is simply not possible to provide every student with teachers of substantially equal ability. (Teachers would be "of substantially equal ability" when no student would acquire an advantage over any other student merely because of differences in teacher performance.) In this connection, note that the same kinds of problems confront those who wish to equalize the availability of legal, medical, recreational, and other services. There are absolute as well as prudential limits to the equalization of any social service.

PROCEDURAL EQUALITY

Let us now consider another suggested solution to the problem of eliminating segregated schools, to see whether or not it would provide equality of educational opportunity. This solution is to develop a system of schools in which pupils were segregated by sex. It should be understood that I am neither advocating nor opposing such a solution, but desire only to analyze it from the standpoint of equality of educational opportunity. If segregating children according to race constitutes inequality, would not segregating them by sex also constitute inequality? If so, does every distinction among pupils or prospective pupils create inequality of educational opportunity? If not, on what basis do we say that certain criteria for segregating pupils, e.g., sex, do not constitute inequality of educational opportunity whereas others, e.g., race, do constitute inequality of educational opportunity? These questions call for a more extended analysis of procedural equality.

All of us are familiar with procedural equality in practice. It is the concept which is ignored when there is a "teacher's pet." And yet, we all recognize that equality does not mean that teachers must give the same rewards and penalties to every child. In giving an "A" to a student with an average of 90, a "B" to a student with an average of 85, and a "C" to a student with an average of 80, the teacher is still according pupils equal treatment. In this context, equality does not mean that every student receive the same grade, but that every student be graded according to standards which apply to all. When we think of equality before the law, we do not suppose that there can be no equality unless all persons on trial are acquitted or all are convicted. Rather, we assume that given equality before the law, some will be acquitted and some convicted. The "equality" involved is not one of outcome but of procedure to determine the outcome.

Procedural equality is usually the issue when there is a controversy over admission to an educational institution. The person who is refused admission may claim either that the criteria for admission are "discriminatory" (i.e., deprive him of equality of educational opportunity) or that they have been applied in a discriminatory way. The difficulty is that some discrimination, in the generic sense of "discrimination," is absolutely essential to the operation of an educational institution. The problem is to distinguish between those discriminations which are legitimate and those which involve "discrimination" in an invidious sense.

When the discrimination is due to governmental action and is challenged in the courts, the courts must have some criterion for deciding between legal and illegal discrimination. The courts have sometimes said that the discriminations were legal when they were "reasonable" and that they were reasonable when they were based upon "real differences" between the persons classified. This is not too clear. A difference in skin color is as real as a difference in academic achievement. The important point is that the categories into which government divides people must be relevant to a valid governmental purpose. The difference between those who pass and those who fail an entrance examination is real. It is also relevant to the valid purpose of ensuring that only qualified students are admitted to the state institution. A difference in skin color is real, but it is irrelevant to this legitimate governmental purpose. For this reason, it was regarded as violating the Negro's right to equality of educational opportunity.

What about schools in which pupils are segregated by sex? Even the suffragettes will concede that the differences between men and women are real. Are the differences relevant to a valid governmental purpose? In my opinion, the differences would probably be regarded as relevant to certain valid educational purposes, so that it would not be unconstitutional to operate schools this way. However, it is not my intention to guess what courts would do or to advocate that we abandon coeducation, even to achieve integration. My point is merely that the differences between the sexes might provide a reasonable basis for separate schools operated to achieve a valid governmental purpose. For example, it might be argued that in coeducational high schools, the boys spend too much time chasing girls (or *vice versa!*). It might be contended that instruction in certain subjects like biology is more easily carried on in segregated classes.

To take another example, suppose a state-operated medical school were to make a study of the number of years its graduates spent in active practice. Suppose the study revealed that the average male graduate spent 25 years more than the average female graduate in active practice, the difference being due to the fact that the women doctors withdrew from practice to have children, run a home, etc. Suppose further that in the light of this study, of the high cost to society of medical education, and the urgent need for more doctors, the school decided to accept male candidates only. And now let us suppose that a qualified female candidate for medical school sues to be admitted, on the grounds that the blanket refusal of the medical school to accept female medical students deprives her of the equal protection of the laws, that is, would deprive her of equality of educational opportunity.

Again, my purpose is not to guess what the courts would do, but merely to suggest how certain inequalities might come to be accepted by society as a whole, because they are seen as a reasonable means toward the achievement of other goals. Perhaps a better example might be the exclusion from medical schools of prospective candidates with rheumatic heart disease. No matter how otherwise well qualified, such candidates are not accepted. One might, as a matter of usage, state that there is equality of educational opportunity, meaning by this that the procedures used in admitting students do not discriminate in any unfair way. Or one might say, thinking of the fact that a student with rheumatic heart disease has no chance to be admitted to medical school, that there is inequality of educational opportunity, but that it is a permissible kind of inequality.

Let us now assume a situation in which there is only one medical school in a given state, but that it is a medical school operated by a private university. This university does not admit students of a particular race or religion. Is there equality of educational opportunity in this situation?

Obviously, from the standpoint of the person excluded, there is not equality of educational opportunity. The fact that he is not excluded by state law but by the regulation of a private institution is irrelevant in this context. This fact underlies the legislation passed in some states to require private educational institutions to observe the same procedural equality that is incumbent upon the public institutions.

Social Goals and Educational Priorities

So far, I have been discussing the problems of defining equality in terms of A and B who are assumed to be equal in capacity to profit from the same educational program. But just as we know that circumstances are never identical, so we know also that A and B are never going to be exactly equal with respect to capacity to profit from education. If the differences are minute, there is no serious practical problem. But how do we determine whether equality of educational opportunity prevails between A, who possesses below average academic ability, and B, who possesses the capacity for successful completion of the most advanced professional training?

I am not now talking about procedural equality to determine who is admitted to an educational institution, or about the way in which students are treated once they have been admitted. I am referring now to a problem which, in simplest form, might run like this: School district X has one high school. This high school offers secretarial training. It has a college preparatory course and also vocational courses which prepare students for jobs as auto mechanics, plumbers, electricians, and carpenters. However, the school does not provide any program specifically designed to train barbers. Students who wish to study for this occupation must pay for the privilege at a private barbering school.

Now let us assume that there is perfect procedural equality in the way students are admitted to the various curricula in this school district, and also in the way they are treated once they have been admitted. Nevertheless, we can well imagine the would-be barber thinking to himself that although there is equality between all the students who wish to go on to college, or become secretaries, auto mechanics, electricians, or carpenters, there is no equality of educational opportunity between these students and the ones who wish to become barbers. In other words, because we provide specialized curricula for some, do we have to provide a specialized curriculum for all in order to have equality of educational opportunity?

As a rule, it is practically impossible to provide at public expense training for every occupation which the students in a particular school need to enter an occupation. If one student in a Maine high school wants to be an orange grower, it is hardly incumbent upon the school board in his community to set up a curriculum in agricultural education in order to have equality of educational opportunity in its schools. At least, at a common sense level, one does not expect a school board to go to such extremes to avoid the criticism that it is not providing equal educational opportunity in its schools.

On the other hand, there must be some criteria to decide what shall and shall not be provided. Otherwise, we would be forced to say that whatever curricula a school board provides is consistent with equality of educational opportunity. Most of us would not go this far. If a school board dropped every course except those required by students going on to college, most of us would object to this as inconsistent with equality of educational opportunity. Indeed, this is what many Americans did say about high schools devoted solely to preparation for college, and their attitude was an influential factor in bringing about an expansion of high school subjects and programs. The same attitude is partly responsible for the vast increase in the kinds of occupational training in higher education.

It seems to me that the basic issue in this kind of situation is whether the educational priorities (such as college preparatory and commercial courses, but not barbering courses) have been established by a democratic procedure. If our society decides that it needs more physicians, and expands the opportunities for medical education at the expense of other kinds of training, this does result in inequality of educational opportunity, at least in an invidious sense. In other words, educational priorities must reflect social goals; as long as the social goals and the educational priorities are established by democratic and scientific procedures, the resulting factual inequalities of educational opportunity will have to be accepted as an inescapable residue of inequality.

It should be open to anyone to try to change our social goals, or to try to show that existing educational priorities do not effectively implement our accepted goals. This qualification is extremely important. The proposed criterion does not mean that every educational priority we have now is acceptable. Furthermore, the procedures by which social goals and educational priorities are established must be democratic in more than a legal sense. They must be democratic in the sense that there is effective expression to all legitimate interests which attempt to shape goals or priorities.

Over the country, one public institution after another has instituted courses in business administration. Meanwhile, higher education for union leadership has not been subsidized by government on anywhere near the scale for business leadership. One can reasonably contend that there is inequality of educational opportunity between A, who aspires to business leadership, and B, who aspires to a position in the labor movement but who cannot acquire the training for this kind of occupation in the state universities. Whether this contention is sound depends upon whether we accept certain social goals and whether we believe that current educational priorities provide the most feasible means of achieving these goals.

A similar line of thought applies to the nonvocational education provided students of differing abilities. Equality of educational opportunity involves much more than equality of opportunity to acquire a certain kind of occupational training. In any case, the problem of deciding what is equal treatment for students of widely different abilities is going to be much in the public eye as the pressure to establish more differentiated academic programs continues to increase. Logically, there may be just as much inequality of educational opportunity when all students are required to take the same academic program as when there are inadequate or no programs for students of certain ability levels or occupational goals. Educational theorists have long pointed out that equality of educational opportunity does not mean that every child is to receive identical treatment. To force a gifted child and one who is mentally retarded to take the same academic program is to ensure inequality of educational opportunity for at least one of them. Psychologically, however, people are less sensitive to the inequalities inherent in identical treatment for students of widely varying abilities than they are to the inequalities resulting from a multiple track educational system which ignores the just claims of particular groups.

"Equality of Educational Opportunity": Two Suggested Meanings

To regard controversies over the removal of specific inequalities, such as the elimination of tuition fees in professional schools, as a controversy between those who do and those who don't believe in equality of educational opportunity is apt to be misleading. The individual who does not favor higher taxes in order to eliminate tuition fees in professional schools may believe in equality of educational opportunity, but he may also be unaware of the effect of tuition fees in professional schools or he may be unwilling to sacrifice as much for the principle of equality as the next person. In practice, our characterization of a person as a believer in equality of educational opportunity will depend more upon the extent to which the person is willing to sacrifice other values in support of equality than it is upon the person's abstract acceptance of the principle of equality of educational opportunity.

As a rule, if we do not object to existing inequalities, we assert that equality of educational opportunity prevails. Probably the situation would be much clearer if we referred more often to permissible and impermissible kinds of inequality of educational opportunity. To state that there is equality of educational opportunity, when you mean that you choose to accept the prevailing inequalities as the lesser of two evils, tends to ignore the need for continuing evaluation of the existing inequalities. Usage that emphasized permissible and impermissible inequality would have the virtue of making explicit the inequality prevailing at any given time. Since there are always some inequalities and since a democratic society needs to be alert to the possibilities of removing them with a minimum of disturbance to other values, it would seem advisable to favor that usage which tends to increase our awareness of existing inequalities, however acceptable or unavoidable they may be at any given time.

Since the purpose of this essay is to analyze what people mean by "equality of educational opportunity," it might be helpful to conclude by suggesting some definitions of the phrase which correspond to actual usage. This will be in keeping with the point made repeatedly throughout the essay that the phrase is given different meanings from time to time. I shall offer two definitions which seem to me to express what people most often mean by the phrase.

One suggested meaning is that A and B have equality of educational opportunity when they live under conditions which do not provide either person with any material advantage over the other in selecting or pursuing his educational goals. Obviously, there is actually very little equality of educational opportunity according to this definition. Nevertheless, people who give the phrase this meaning may not realize the range of conditions which in fact give one person a material advantage over another, hence they may continue to believe that there is widespread equality of educational opportunity despite the widespread inapplicability of this definition to actual conditions.

The other meaning which seems to be often given to "equality of educational opportunity" is that A and B have equality of educational opportunity when the material advantages which one of them possesses over the other in selecting or pursuing his educational goals cannot be removed without endangering other important values. This meaning probably corresponds more closely to common usage than the previous one. Because the "other important values" vary from person to person, the state of affairs characterized by "equality of educational opportunity" also varies from person to person. This definition assumes that people have some sophistication about the conditions that constitute inequality, but there is no doubt that even the persons who have this definition in mind are often unaware of the range of conditions that affect equality of educational opportunity. They also erroneously apply the phrase to states of affairs characterized by inequalities which could be eliminated without endangering other values.

Learning and Thinking[1]

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JEROME S. BRUNER

I

I HAVE BEEN ENGAGED, these last few years, in research on what makes it possible for organisms—human and subhuman alike—to take advantage of past learning in attempting to deal with and master new problems before them now. It is a problem with a deceptively simple ring to it. In pursuit of it, my colleagues and I have found ourselves observing children in schoolrooms, watching them learning. It has been a revealing experience.

We have come to recognize in this work that one of the principal objectives of learning is to save us from subsequent learning. This seems a paradox, but it is not. Another way of putting the matter is to say that when we learn something, the objective is to learn it in such a way that we get a maximum of travel out of what we have learned. A homely example is provided by the relationship in arithmetic between addition and multiplication. If the principle of addition has been grasped in its deeper sense, in its generic sense, then it is unnecessary to learn multiplication. For, in principle, multiplication is only repeated addition. It is not, as we would say in our curricula, another "unit."

Learning something in a generic way is like leaping over a barrier. On the other side of the barrier is thinking. When the generic has been grasped, it is then that we are able to recognize the new problems we encounter as exemplars of old principles we have mastered. Once over the barrier, we are able to benefit from what William James long ago called "the electric sense of analogy."

There are two interesting features in generic learning—in the kind of learning that permits us to cross the barrier into thinking. One of them is

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[1] Paper presented to Massachusetts Council on Teacher Education, February 13, 1958.

organization; the other is *manipulation*. If we are to use our past learning, we must organize it in such a way that it is no longer bound to the specific situation in which the learning occurred. Let me give an example from the history of science. It would have been possible for Galileo to have published a handbook of the distances traversed per unit time by falling bodies. School boys for centuries thereafter could easily have been tortured by the task of having to remember the Galilean tables. Such tables, cumbersome though they might have been, would have contained all the necessary information for dealing with free-falling bodies. Instead, Galileo had the inspiration to reorganize this welter of information into a highly simplified form. You recall the compact expression $S=\frac{1}{2}gt^2$: it not only summarizes all possible handbooks but organizes their knowledge in a way that makes manipulation possible. Not only do we know the distances fallen, but we can use the knowledge for bodies that fall anywhere, in any gravitational field—not just our own.

One of the most notable things about the human mind is its limited capacity for dealing at any one moment with diverse arrays of information. It has been known for a long time that we can deal only with about seven independent items of information at once; beyond that point we exceed our "channel capacity," to use our current jargon. We simply cannot manipulate large masses of information. Because of these limits, we must condense and recode. The seven things we deal with must be worth their weight. A simple formula that can regenerate the distance fallen by any free body, past or future, is under these conditions highly nutritious for its weight. Good organization achieves the kind of economical representation of facts that makes it possible to use the facts in the future. Sheer brute learning, noble though it may be, is not enough. Facts simply learned without a generic organization are the naked and useless untruth. The proper reward of learning is not that it pleases the teacher or the parents, nor is it that we become "quiz kids." The proper reward is that we can now use what we have learned, can cross the barrier from learning into thinking. Are we mindful of these matters in our conduct of teaching?

What has been said thus far must seem singularly lacking in relevance to magic, to art, and to poetry. It appears to relate principally to the learning of mathematics, science, and the social studies. But there is an analagous point to be made about the learning of the arts and literature. If one has read literature and beheld works of art in such a way as to be able to think with their aid, then one has also grasped a deeper, simplifying principle. The underlying principle that gives one the power to use literature and the arts in one's thinking is not of the order of a generic condensation of knowledge. Rather it is metaphoric in nature, and perhaps the best way of describing this class of principles is to call them guiding myths.

Let me take an example from mythology. Recall when you read for the first time the story of Perseus slaying the hateful Medusa. You recall that to look directly upon the Medusa was to be turned to stone. The secret of Perseus was to direct the killing thrust of his sword by the reflection of Medusa on his polished shield. It is an exciting story, full of the ingenuity that Hercules had taught us to expect. Beneath the story, beneath all great stories, there is a deeper metaphoric meaning. I did not understand this meaning for many years, indeed, not until my son asked me what the myth of Perseus "meant." It occurred to me that the polished shield might symbolize all of the devices by which we are able to take action against evil without becoming contaminated by it. The law suggested itself as one such device, enabling us to act against those who trespassed against morality without ourselves having to trespass in our action. I do not wish to hold a brief for my interpretation of the Perseus myth. But I would like to make one point about it.

Man must cope with a relatively limited number of plights—birth, growth, loneliness, the passions, death, and not very many more. They are plights that are neither solved nor by-passed by being "adjusted." An adjusted man must face his passions just as surely as he faces death. I would urge that a grasp of the basic plights through the basic myths of art and literature provides the organizing principle by which knowledge of the human condition is rendered into a form that makes thinking possible, by which we go beyond learning to the use of knowledge. I am not suggesting that the Greek myths are better than other forms of literature. I urge simply that there be exposure to, and interpretation of, literature that deals deeply with the human condition. I have learned as much from Charley Brown of *Peanuts* as I have learned from Perseus. The pablum school readers, stripped of rich imagery in the interest of "readability," stripped of passion in the erroneous belief that the deeper human condition will not interest the child—these are no more the vehicles for getting over the barrier to thinking than are the methods of teaching mathematics by a rote parrotting at the blackboard.

II

I should like to consider now some conditions in our schools today that promote and inhibit progress across the barrier from learning to thinking. I should point out in advance that I am not very cheerful on this subject.

The passivity of knowledge-getting. I have been struck during the past year or so, sitting in classrooms as an observer, by the passivity of the process we call education. The emphasis is upon gaining and storing information, gaining it and storing it in the form in which it is presented. We carry the remainder in long division so, peaches are grown in Georgia, transportation is vital to cities, New York is our largest port, and so on. Can the facts or the methods presented be mimicked? If so, the unit is at an end. There is little effort indeed which goes into the process of putting the information together, finding out what is generic about it. Long division is a skill, like threading a needle. The excitement of it as a method of partitioning things that relates it to such matters as subtraction is rarely stressed. One of the great inventions of man—elementary number theory—is presented as a cookbook. I have yet to see a teacher present one way of doing division and then put it squarely to the class to suggest six other ways of doing it—for there are at least six other ways of doing it than any one that might be taught in a school. So too with algebra. Algebra is not a set of rules for manipulating numbers and letters except in a trivial sense. It is a way of thinking, a way of coping with the drama of the unknown. Lincoln Steffens, in his *Autobiography,* complains upon his graduation from the University of California that his teachers had taught him only of the known, how to commit it to mind, and had done little to instruct him in the art of approaching the unknown, the art of posing questions. How does one ask questions about the unknown? Well, algebra is one technique, the technique for arranging the known in such a way that one is enabled to discern the value of an unknown quantity. It is an enriching strategy, algebra, but only if it is grasped as an extended instance of common sense.

Once I did see a teacher specifically encourage a class to organize and use minimal information to draw a maximum number of inferences. The teacher modeled his technique, I suppose, on the tried method of the storyteller. He presented the beginnings of the Whiskey Rebellion and said to his pupils, much in the manner of Ellery Queen speaking to his readers, "You now have enough to reconstruct the rest of the story. Let's see if we can do it." He was urging them to cross the barrier from learning into thinking. It is unhappily true that this is a rare exception in our schools. So knowledge-getting becomes passive. Thinking is the reward for learning, and we may be systematically depriving our students of this reward as far as school learning is concerned.

One experiment which I can report provides encouragement. It was devised and carried out by the research group with which I am associated at Harvard in collaboration with teachers in the fifth grade of a good public school. It is on the unpromising topic of the geography of the North Central States and is currently in progress so that I cannot give all of the results. We hit upon the happy idea of presenting this chunk of geography not as a set of knowns, but as a set of unknowns. One class was presented blank maps, containing only tracings of the rivers and lakes of the area as well as the natural resources. They were asked as a first exercise to indicate where the principal cities would be located, where the railroads, and where the main highways. Books and maps were not permitted and "looking up the facts" was cast in a sinful light. Upon completing this exercise, a class discussion was begun in which the children attempted to justify why the major city would be here, a large city there, a railroad on this line, etc.

The discussion was a hot one. After an hour, and much pleading, permission was given to consult the rolled up wall map. I will never forget one young student, as he pointed his finger at the foot of Lake Michigan, shouting, "Yipee, *Chicago* is at the end of the pointing-down lake." And another replying, "Well, OK: but Chicago's no good for the rivers and it should be here where there is a big city (St. Louis)." These children were thinking, and learning was an instrument for checking and improving the process. To at least a half dozen children in the class it is not a matter of indifference that no big city is to be found at the junction of Lake Huron, Lake Michigan, and Lake Ontario. They were slightly shaken up transportation theorists when the facts were in.

The children in another class taught conventionally, got their facts all right, sitting down, benchbound. And that was that. We will see in six months which group remembers more. But whichever does, one thing I will predict. One group learned geography as a set of rational acts of induction—that cities spring up where there is water, where there are natural resources, where there are things to be processed and shipped. The other group learned passively that there were arbitrary cities at arbitrary places by arbitrary bodies of water and arbitrary sources of supply. One learned geography as a form of activity. The other stored some names and positions as a passive form of registration.

The Episodic Curriculum. In a social studies class of an elementary school in a well-to-do suburb of one of our great eastern cities, I saw groups of twelve-year-old children doing a "project" on the southeastern states. Each team was gathering facts that might eventually end up on a map or a chart or some other graphic device. The fact-gathering was atomized and episodic. Here were the industrial products of North Carolina. There was the list of the five principal cities of Georgia. I asked the children of one team what life would be like and what people would worry about in a place where the principal products were peanuts, cotton, and peaches. The question was greeted as "unfair." They were gathering facts.

It is not just the schools. The informational environment of America seems increasingly to be going through such an atomization. Entertainment is in fifteen minute episodes on TV, to be taken while sitting down. The school curriculum is built of episodic units, each a task to itself: "We have now finished addition. Let us now move to multiplication." Even in our humor the "gag" threatens to replace the shrewd observer of the human comedy. I have seen an elementary school play fashioned entirely on a parody of radio commercials. It was a brave effort to tie the 10-second atoms together.

I do not wish to make it seem as if our present state of education is a decline from some previous Golden Age. For I do not think there has ever been a Golden Age in American public education. The difference now is that we can afford dross less well than ever before. The volume of positive knowledge increases at a rapid rate. Atomizing it into facts-to-be-filed is not likely to produce the kind of broad grasp that will be needed in the world of the next quarter century. And it is certainly no training for the higher education that more and more of our children will be getting.

I have not meant the above as a plea for the "central subject" or the "project" method of teaching. It is, rather, a plea for the recognition of the continuity of knowledge. One hears professional educators speak of "coverage," that certain topics must be covered. There are indeed many things that must be covered, but they are not unconnected things. The object of learning is to gain facts in a context of connectivity that permits the facts to be used generatively. The larger the number of isolated facts, the more staggering the number of connections between them—unless one can reduce them to some deeper order. Not all of them can. Yet it is an ideal worth striving for, be it in the fifth grade or in graduate school. As Robert Oppenheimer put it in a recent address before the American Academy, "Everything cannot be connected with everything in the world we live in. Everything can be connected with anything."

The embarrassment of passion. I should like to consider now the guiding myth. Let me begin with a summary of the young Christopher Columbus as he is presented in a popular social studies textbook. Young Chris is walking along the water front in his home town and gets to wondering where all those ships go. Eventually he comes back to his brother's cobbler shop and exclaims, "Gee, Bart, I wonder where all those ships go, whether maybe if they just kept going they wouldn't come back because the world is round." Bart replies with pleasant brotherly encouragement. Chris is a well-adjusted kid. Bart is a nice big brother. And where is the passion that drove this obsessed man across uncharted oceans? What impelled this Columbus with such force that he finally enlisted the aid of Ferdinand and Isabella over the protest of their advisors? Everything is there in the story except the essential truth—the fanatical urge to explore in an age of exploration, the sense of an expanding world. Columbus did not have a schoolboy's whim, nor was he the well-adjusted grownup of this account. He was a man driven to explore, to control. The justification for the pablum that makes up such textbooks is that such accounts as these touch more directly on the life of the child.

What is this "life of the child" as seen by text writers and publishers? It is an image created out of an ideal of adjustment. The ideal of adjustment has little place for the driven man, the mythic hero, the idiosyncratic style. Its ideal is mediocentrism, reasonableness above all, being nice. Such an ideal does not touch closely the deeper life of the child. It does not appeal to the dark but energizing forces that lie close beneath the surface. The Old Testament, the Greek Myths, the Norse legends—these are the embarrassing chronicles of men of passion. They were devised to catch and preserve the power and tragedy of the human condition—and its ambiguity, too. In their place, we have substituted the noncontroversial and the banal.

Here a special word is needed about the concept of "expressing yourself," which is our conception of how one may engage the deeper impulses of the child. I have seen a book review class in a public school in which the children had the choice of reporting on any book they wished to choose, in or out of the school library, and where the discussion by the other children had to do entirely with the manner in which the reciting child presented his material. Nothing was said about the book in the discussion. The emphasis was on nice presentation, and whether the book sounded interesting. I have no quarrel with rewarding self-expression. I wonder simply whether it is not perhaps desirable, too, to make known the canons of excellence. The children in this class were learning to be seductive in their recounting; they were not concerned with an honest accounting of the human condition. The books they had read were cute, there was no excitement in them, none to be extracted. Increasingly the children in American elementary schools grow out of touch with the guiding myths. Self-expression is not a substitute. Adjustment is a worthy ideal, if not an ennobling one. But when we strive to attain it by shutting our eyes to the turmoils of human life, we will not get adjustment, but a niggling fear of the unusual and the excellent.

The quality of teachers. I do not wish to mince words. The educational and cultural level of the majority of American teachers is not impressive. On the whole they do not have a good grasp of the subject matter that they are teaching; courses on method will not replace the absent subject matter. In time and with teaching experience this deficiency is often remedied. But in so many cases there is no time: the turnover in the teaching profession as we all know is enormous; the median number of years of teaching before departure for marriage or motherhood is around three.

This leaves us with a small core of experienced teachers. Do we use them to teach the new teachers on the job? No. The organization of the school with respect to utilization of talent is something short of imaginative. It consists of a principal on top and a group of discrete teachers beneath her, and that is all. In large metropolitan high schools this is sometimes supplemented by having departments at the head of which is an experienced teacher. The communication that goes on between teachers is usually at a highly informal level and can scarcely be called comprehensive. It is usually about problem-children, not about social studies or mathematics or how to bring literature alive.

I would urge, and I believe that educators have taken steps in this direction, that we use our more experienced teachers for on-the-job training of less experienced, new teachers. I would also urge that there be established some means whereby the substantive topics taught in our elementary and high schools be included in some kind of special extension program provided by our eighteen hundred colleges and universities in the United States for the benefit of teachers. I am not speaking only of teachers colleges, but rather of all institutions of higher learning. Institutions of higher learning have a responsibility to the lower schools, and it can be exercised by arranging for continuous contact between those, for example, who teach history at the college level and those who are teaching history or social studies at the lower levels. And so, too, with literature or mathematics, or languages. To assume that somehow a teacher can be "prepared" simply by going through teacher training and then by taking courses on methods in summer school is, I think, fallacious. Often it is the case that the teacher, like her students, has not learned the material well enough to cross the barrier from learning to thinking.

III

It is quite plain, I think, that the task of improving the American Schools is not simply one of technique—however comforting it would be to some professional educators to think so. What is at issue, rather, is a deeper problem, one that is more philosophical than psychological or technological in scope. Let me put it in all innocence. What do we conceive to be the end product of our educational effort? I cannot help but feel that this rather overly simplified question has become obscured in cant. There is such an official din in support of the view that we are "training well-rounded human beings to be responsible citizens" that one hesitates to raise the question whether such an objective is a meaningful guide to what one does in classroom teaching. Surely the objective is worthy, and it has influenced the techniques of education in America, not always happily. For much of what we have called the embarrassment of passion can, I think, be traced to this objective, and so too the blandness of the social studies curriculum. The ideal, sadly, has also led to the standardization of mediocrity by a failure of the schools to challenge the full capacity of the talented student.

Since the war, there has been a perceptible shift in the problems being faced by schools and parents alike. It is the New Competition. Will Johnny and Sally be able to get into the college of their first choice or, indeed, into any college at all? The origins of the concern are obvious enough—the "baby bulge" has made itself felt. The results are not all bad, I would urge, or need not be. There are, to be sure, severe problems of overcrowding that exacerbate the difficulties already inherent in public education. And it is true that parental pressures for grades and production are increasing the proportion of children with "learning blocks" being referred to child guidance clinics.

But the pressures and the competition are also rekindling our awareness of excellence and how it may be nurtured. The shake-up of our smugness by the evident technical thrust of the Soviet Union has added to this awareness. Let me urge that it is this new awareness that requires shaping of expression in the form of a new set of ideals. Grades, admission to college, followed by admission to graduate school—these are surely not the ideals but, rather, the external signs.

Perhaps the fitting ideal is precisely as we have described it earlier in these pages, the active pragmatic ideal of leaping the barrier from learning into thinking. It matters not *what* we have learned. What we can *do* with what we have learned: this is the issue. The pragmatic argument has long been elaborated on extrinsic grounds, that the higher one has gone in the educational system the greater the economic gain. Indeed, at least one eminent economist has proposed that parents finance college education for their children by long-term loans to be repaid by the children on the almost certain knowledge that higher earning results from such education. All of this is the case, and it is indeed admirable that educational progress and economic success are so intimately linked in our society. I would only suggest that the pragmatic ideal be applied also to the intrinsic aspects of education. Let us not judge our students simply on *what* they know. That is the philosophy of the quiz program. Rather, let them be judged on what they can generate from what they know—how well they can leap the barrier from learning to thinking.

Students' Use and Misuse of Reading Skills: A Report to a Faculty

One of the obvious responsibilities of a director of a special guidance service in a university is to report from his experience to his faculty. He will communicate successfully, however, only if he can step outside his job and talk about his work in the perspective of the broad educational purposes of the institution. Given this perspective, he can address himself to the ordinary rhetorical problems of eliciting the interest and respect of his listeners in ways appropriate to his message, his community, and his person.

This report by the Director of the Bureau of Study Counsel at Harvard was a short talk in a regular faculty meeting. In it he presents some provocative observations which he has derived from developing a course in reading improvement and, more recently, from a rather unusual test of reading.

We present the script of his talk not only for the interest of its content, but for the illustration it affords of singularly effective communication in such a setting.

Mr. Perry, Director of the Bureau of Study Counsel for the past twelve years, has written a number of articles on counseling, reading, and education, and has previously contributed to this journal.

WILLIAM G. PERRY, JR., *Director, Bureau of Study Counsel*

MR. PRESIDENT, TWENTY YEARS AGO this Faculty undertook an experiment to see if some of its students could be taught to read better. Since the Faculty was then something of a pioneer in such an enterprise, it would seem appropriate that it should receive, after two decades, at least a report of progress—the more so because the work now concerns not the correction of the disabilities of a few students but the direction of the abilities of a large proportion of the freshman class.

The students of this college are reputed to spend a good deal of time reading. In fact, a student sits with his books for nearly a thousand hours each year. The Faculty has a deep concern that these hours be fruitful. This concern is evident in the wording of assignments, in the layout of instruction in each course, and in the conversations of teachers with their students.

It was this same concern that started the original experiment in reading improvement in 1938. The experiment began with a rather mechanical emphasis. It consisted of an instructor whose main job was to run a projector for the first Harvard Reading Films, and of some thirty student volunteers, hopefully the worst readers in the freshman class (and at that time there apparently were some freshmen who for Harvard's intents and purposes found it hard to read at all). The class met for about 18 or 20 sessions and engendered enough enthusiasm to become, like many an experiment, a kind of annual fixture, this one known as the Remedial Reading Course. Each year freshmen as they arrived in the fall would take a reading test and those who scored lowest would be informed of their plight and allowed to volunteer for the continued experiment.

When the Bureau of Study Counsel took over the actual instruction in this course in 1946, we met with thirty depressed-looking volunteers one evening in a basement classroom somewhere. Not knowing really what we were up against, we gave them still another reading test of a standard sort and discovered that every single one of them could score better on this test than 85% of the college freshmen in the country. We felt that to be useful to these people in their genuine dissatisfaction we were going to have to take a new look at the reading improvement game. We therefore abandoned the word "Remedial" for the course and upgraded the material until it could jar the teeth of the average graduate student. Then we threw the doors open.

The amount of enthusiasm that exists in this community to read better—or if not better, then at least faster—is evidenced by the fact that we soon found ourselves with nearly 800 people enrolled in the course. When we examined the roll, we found that we had some 400 freshmen from Harvard and Radcliffe, 150 upperclassmen, 230 graduate students from the various schools, especially that of Business Administration, and 2 professors—from the Law School.

Although the fees paid by these multitudes looked very attractive on the budget of a small office, we came to feel this was stretching our energies too far. We have subsequently cut the class in half and have been trying to make some sensible system of priorities whereby we might offer first chance on seats to roughly that third of the freshman class that might be most likely to benefit from this kind of instruction. In trying to find out who these people might be, we have turned up some observations about freshmen which may be of interest to the Faculty.

One wonders first of all why students who read, on tests, as well as these do, should want to attend a reading course at all, much less one that meets daily at 8 o'clock in the morning. Of course a number come in hope of magic—some machine they've heard of that will stretch their eyes until they can see a whole page at a glance. This is understandable. Freshmen are deprived rather abruptly of the luxury of thinking that reading is something they can finish, and are confronted instead with an infinite world of books in which they sense that they may forever feel behind, or even illiterate.

But year by year it has become more apparent that what the students lack is not mechanical skills but flexibility and purpose in the use of them—the capacity to adjust themselves to the variety of reading materials and purposes that exist on a college level.

What they seem to do with almost any kind of reading is to open the book and read from word to word, having in advance abandoned all responsibility in regard to the purpose of the reading to those who had made the assignment. They complain consequently of difficulty in concentrating and feel that they have "read" whole assignments but are unable to remember anything in them. We have therefore shifted the emphasis of the reading course away from mechanics over to an effort to shake students loose from this conscientious but meaningless approach to their work. We have found that if they can be persuaded of their right to think, even though reading, they can then develop a broader and more flexible attack on the different forms of study and put their skills to meaningful use even on long assignments.

In offering freshmen priority on seats in the course, therefore, we have naturally wanted to know about their flexibility and their sense of purpose in reading. This is a hard thing to measure. To make some estimate of it we designed a new kind of reading test—as reading tests go it may really be rather peculiar—and presented it to the freshmen of Harvard and Radcliffe when they arrived this September. We suspected the students might learn more from it than we would, but this seemed a legitimate chance to take. I should like to describe this test and to tell you what the students did with it.

First of all, instead of the usual short passages which appear on reading tests, we presented students with thirty pages of detailed material—a complete chapter from a history book. We asked them to imagine that they were enrolled in a course entitled *The Growth of Western Institutions*. We asked them to picture themselves sitting down of an evening to study one assignment in this course—this chapter entitled "The Development of the English State, 1066-1272." They were to suppose that they had two hours ahead of them for this work, but that after all, they still had their French to do and some Chemistry to review before they went to bed. At the same time, they were to imagine that in this course an hour-examination would be given in about a week on which they would be asked to write a short essay and to "identify" important details. We told them to go ahead about their reading in whatever way they thought best and to take notes if they wished. We told them that this was a test of what they derived from the early stages of their study of regular assignments and that in about 20 minutes or so we would stop them and ask them questions appropriate to their particular method of work. We then turned them loose.

Twenty-two minutes later we stopped them and asked them what they had been doing. If they reported that they had been reading from the very beginning and going straight ahead into the chapter—whether rapidly the first reading, or carefully with a more rapid review in mind—we gave them regular multiple-choice questions on the chapter as far as they had gone in it. Up to this point the test was fairly standard, and we can report that the vast majority of the students, over ninety percent of them in fact, reported that this was exactly what they had done. We can report that their rate of work in this particular approach was astonishing and their capacity to answer multiple-choice questions on detail was impressive. Some of them had read as many as twenty pages of very detailed material and were able to answer accurately every sensible question we could ask them, *about the detail.*

The freshman class—as far as we could see—of both Harvard and Radcliffe, consisted of a most remarkable collection of readers—in the narrow sense of the term. The showing is most remarkable because, of course, these ninety percent of the class were going at this chapter *in the hardest way imaginable.*

Let me explain what I mean. The chapter in question is an admirable piece of exposition, but like many admirable chapters it makes no initial statement of its aims, and it takes a little while to get going. And as a consequence, the reader who begins at the beginning with the Battle of Hastings and reads word by word is likely to find himself at page three hopelessly bogged down in the shires, the hundreds and the marches of Anglo-Saxon England. And after ten minutes or so, this was just where the students reported themselves to be. What we were interested to determine was how many students in the face of this burden of detail, the purpose of which was not clear, would have the moral courage—or should we call it the immoral courage—to pull themselves out and look at the ending of the chapter. Or even to survey the entire marginal gloss set out like sign posts page by page. The very ending has a bold flag out beside it which says—"Recapitulation." As a summary paragraph we doubt that we have ever seen a better one. From a half minute of study of this paragraph the whole development of the chapter becomes immediately clear to a reader and puts him in a strong position, not only to select among details as he reads them, but also to remember, for their meaningfulness, the details he would need to support an intelligent discourse.

Out of these 1500 of the finest freshman readers in the country only one hundred fifty even made a claim to have taken a look ahead during twenty minutes of struggle with the chapter. And the vast majority of these seemed to have looked ahead only to determine how long the assignment was.

We asked anyone who could do so to write a short statement about what the chapter was all about. The number who were able to tell us, in terms that had something to do with the growth of institutions, was just one in a hundred—fifteen.

As a demonstration of obedient purposelessness in the reading of 99% of freshmen we found this impressive. We had been looking for the one-third of the class most in need of our beneficent instruction and we had found just about everybody. We tried to find out if the students had behaved this way simply because it was a test—they reported no, that they always worked this way. When we pointed the ending out to them, some said, "You mean you can sometimes tell what a chapter is about by looking at the *end*?" and others said, "O Lord, how many times have I been told!"

Told or not, after twelve years of reading homework assignments in school they had all settled into the habit of leaving the point of it all to someone else. We knew from our own efforts to teach independence of approach in reading that students find it hard to hear us even when the sheer bulk of college work could be handled in no other way. And we supposed that school-teachers had an even harder time of it. We were therefore prepared to find this widespread passivity of purpose; we wished to go beyond this and to identify those students whose misconceptions of reading involved something worse, a positive misconception of aim, a notion of the purpose of reading so at variance with the goals of Harvard that they might be especially slow at learning from their college experience. We had therefore added another turn to our test.

We asked the students to imagine further that in their imaginary course an examination had been given on which an essay question on this chapter had appeared. This question (which we hoped was a proper-type Harvard essay question) read: "From 1066-1272, the Norman and Angevin kings laid the foundations of English self-government both by their strengths and by their weaknesses." *Discuss. (Twenty minutes).* We then presented them with two answers, purporting to have been written by two students. The first of these was a chronological reiteration of the chapter by a student with an extraordinary memory for dates and kings and no concern for the question (or for any intellectual issue at all, for that matter). We calculated that no instructor with a shred of compassion in him could give this answer less than a C—even though it might deserve less. The second essay answer, shorter, and with hardly a date in it, addressed itself stringently to the issues posed by the question. We supposed this answer to be worth a B+, or perhaps an A—to a relieved instructor.

In validating the test, we had then begged the assistance of the chief section man in a real course, not wholly unlike this imaginary course of ours, and asked him to grade the essays. Of the first, he said that he really couldn't give the student a D because he had worked so hard; of the second, we were pleased to hear him say that this was obviously an A student, even though all he was going to get on this essay was a B+.

To the freshmen, then, we presented on the test these two answers without reporting their value and asked them to state which of the essays was the better, which the worse, and to give their reasons. We are happy to say that on this they did quite well. Only two hundred students graded the better essay the worse, and only two hundred more gave the wrong reasons for the correct grading. This means that, on this particular measure, only a rough third of our freshmen showed themselves to be headed toward the wrong goals. Very possibly, were this same test to be given later in the year, the percentage would be much less. But we have experience to support that the tendency persists—often tragically.

These then were the students to whom we turned our attention. Until such students revise their sense of the purpose of reading, an increase in effort is likely to produce only worse results. Oddly, we have as yet found nothing else to distinguish them from other people. The number of them who come from public schools as against private schools is exactly the same as for the class as a whole, and they are by no means the least intelligent members of their class. We are eager to find if we can learn more about how they get their misconceptions. We hope that the Reading Course may help to turn some of them around. Perhaps the test itself helped; the section man who helped us with the test was quick to point out its instructional possibilities, and we gave the text and essays to the students to take with them, together with a page of comments. It was encouraging to have to thread one's way afterwards through knots of students working over their papers.

What might the faculty conclude from all this? As the faculty's agent in this area, I can report my own conclusions from this twenty-year experiment.

1. It appears that most students can learn to read better.

2. The instruction that assists them to do so does not center in the mechanics of reading. The mechanics of reading skill are inseparable at this level from the individual's purpose as he reads. If you train someone in

mechanics alone, he drops right back into his old habits the minute he picks up an assigned text.

3. The possession of excellent reading skills as evidenced on conventional reading tests is no guarantee that a student knows how to read long assignments meaningfully. The fact that the Admissions Committee is providing students of higher and higher ability should not lull the Faculty into feeling that at last it does not have to teach students how to study. In fact the responsibility is only the greater, for these students have the ability to muddle through assignments the wrong way and still get that wretched C–.

4. There can be no general rules for teaching the exercise of judgment in reading. Such judgment requires courage, and courage cannot be taught by rule, it can only be dared, or redirected, in ways appropriate to particular subjects and learning tasks. To be sure, the reading of conflicting authorities is a fertile ground for young courage, and an excellent exercise in reading skill. And a C– for the attainment of useless knowledge is perhaps less of a kindness in the long run than congratulations for effort and a clean E for expending it in the wrong game. However, the individual instructor in his own course remains the best judge of how to set up his assignments so that they demand a redirection of effort toward judgment and away from ritual.

5. A short separate course of general instruction, like the Reading Class can be of some contributing value, if only because it offers a moment's freedom to experiment without the threat of failure. But its limits are very clear. In such a course we can only dramatize the issues, and this only in the area of very general expository reading. We can refer only briefly to science and must leave literature explicitly alone. We feel, too, that only a narrow line of spirit divides such instruction from an invitation to mere gamesmanship. We sometimes worry, in teaching method without content, lest students gather that we recommend a glance at the ending of chapters and at nothing else. (We do dare students to suppose that even this is sometimes appropriate.)

I should like to be able to report, in conclusion, that when we do succeed in introducing students to the rigors of thoughtful reading they are invariably grateful. I must confess, a bit ruefully, that this is not always the case. I have here a description of this kind of instruction in a student's words. To assist us in developing the course we have occasionally given the students a questionnaire at the end, and this one of a year or so ago was a real up-to-date Social-Science-type questionnaire: open ended at the beginning, pointed at the end, and all. It says here, "What did you expect when you came to this course?" Big space. "What do you think about it now?" Big space. On the other side a lot of specific questions. We did not ask students to sign their names, only to enter the scores they made at the beginning and end of the course.

This student's scores when he came to the course showed him to have derived only a D– kind of understanding from considerable study of the material. At the end he was obtaining a straight A understanding in one-third of the time. I remember settling back with this one in anticipation of those comments that a teacher so loves to hear—but not at all. He was furious. "What did you expect when you came to this course?" "I expected an *organized effort to improve my reading.*" "What do you think about it now?" "This has been the *sloppiest* and most *disorganized* course I have ever taken. Of course, I have made some progress, but this was due *entirely* to my own efforts . . . ."

Learning in Discussions: A Resume of the Authoritarian-Democratic Studies

One hypothesis often accepted by writers on methods of teaching is that a clear distinction may be made between "authoritarian" and "democratic" teachers. While a vocal group of educators favors "democratic" methods, the following article challenges the clarity and utility of the hypothesis itself.

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RICHARD C. ANDERSON

In most teaching methods textbooks you will find reference to two basic teaching styles which can be called teacher-centered and learner-centered. (See, for example, Brandwein, Watson, and Blackwood, 1958; Burnett, 1957; Burton, 1952; Cronbach, 1954; and Grambs, Iverson, and Patterson, 1958.) If you consult a book on industrial management, a book on counseling or psychotherapy, or, indeed, the section on leadership in a textbook on social psychology, you will very likely find a similar statement about leadership. Leadership is universally defined in terms of a hypothetical authoritarian–democratic dimension. Many labels have been applied to this dimension—perhaps it should be called a dichotomy, for such it has been in practice: dominative–integrative, employer-centered–employee centered, teacher-centered–learner-centered, therapist-centered–client-centered, supervisory–participatory, directive–non-directive; but the idea is basically the same.

As the reader is no doubt well aware, authoritarian-democratic theory and research are the subject of lively controversy in education today. Some educators claim that learner-centered methods are most desirable. For example Mursell concluded:

> Thus the importance of a "democratic" classroom situation is no mere fancy, nor is it based on sentimentalism, or on any far-fetched philosophy. It is a highly significant factor in the realistic organization of learning for the sake of authentic results (1954, p. 146).

Others argue that teacher-centered methods are most satisfactory. Grambs, Iverson, and Patterson (1958, pp. 115-116) have asserted that the average teacher leans toward authoritarian teaching, stating that "the school . . . is by tradition authoritarian. . . . Teachers who seek more democratic ways sometimes find that a number of their colleagues strenuously oppose their new approach." The critical student of educational method and policy will want to be in a position to assess the validity of claims from these opposing points of view.

This paper hopes to shed some light on issues basic to this controversy by returning to primary sources. Forty-nine experimental studies in which authoritarian leadership has been compared with democratic leadership will be reviewed. Two questions will be asked of this research:

1. Is there sufficient evidence that one of these two styles of leadership is more effective?
2. Does the authoritarian-democratic continuum provide an adequate conceptualization of leadership?

Later it will be suggested that failure to define carefully "authoritarian" and "democratic," or whatever synonyms were used, has been a general shortcoming of leadership research. For the present, rough working definitions of these terms will be attempted. Authoritarian leaders generally act in an impersonal manner; punish members who disobey or deviate; decide what the group will do or talk about; decide upon division of labor; determine how work shall be done; judge the soundness of ideas; do more talking than the other members of the group. Democratic leaders generally act in a friendly, personal manner; allow the group as a whole to plan the agenda; allow group members to choose the tasks they will perform; allow group members to talk with one another without permission from the leader; accept suggestions from the group about how the work shall be done; talk only a little more than the average group member. In short, the authoritarian leader makes most decisions for the group whereas the democratic leader shares decision-making with the other members. Just how the democratic leader handles deviation is a moot question. Proponents of democratic leadership argue that deviation rarely occurs in democratically-led groups, maintaining that when it does occur the whole group punishes the offending member. This punishment takes the form of withdrawal of love rather than the aggression and overt hostility which are the rule in autocratically-led groups. Observation suggests that people committed to democratic leadership are placed in severe conflict when the situation seems to require open aggression in order to thwart deviation.

This paper will avoid philosophical issues except insofar as they have influenced the kind and quality of research. Rather, authoritarian and democratic leadership styles will be compared in terms of two criteria of effectiveness which can be experimentally investigated. The first criterion is productivity. The definition of productivity varies according to the institutional setting of the experiment. In industrial research productivity refers to work done or units produced, and also to the quality of the work. In educational experiments productivity means the amount learned. Learning also has its qualitative aspects, and these will be considered whenever there is data available. In still another type of study "changes in behavior" will be identified with productivity.

Morale is the second criterion of effectiveness. Morale can be defined as the extent to which group members find the group personally satisfying and the extent to which they believe the group is successfully progressing toward its goals.

There is a problem worth noting in connection with these definitions. The actual definitions of productivity and morale have varied immensely from study to study depending partly upon the kind of institutional setting in which the research was done and partly on the authors' judgments about what was important to observe and measure. In addition, the extensiveness and quality of measures of productivity and morale have varied tremendously. In one case the estimation of morale consisted of the impression of casual observers that "the children seemed to be enjoying themselves a great deal." In another case the measure of productivity was the number of comments showing insight into child psychology (Perkins, 1951). In the latter instance the investigator was faced with a type of discussion in which there necessarily was no tangible product. This kind of problem frequently arises. Whether the solution of any one experimenter is adequate remains to be seen. One thing is evident: the solutions differ. It might well be asked whether these diverse studies are comparable and whether generalization from these studies will have any meaning. One reason the present author is willing to review these studies as though they had some measure of generality is that many synthesizers, specifically the writers of educational textbooks, have assumed that quite unqualified generalization is possible. For instance, after reviewing some of the relevant literature, Burton (1952) stated that,

> Learners *accomplished more* with the help of cooperative, democratic teachers, both in subject matter learning and in the development of personal-social-moral traits. The superiority of settings for learning under the guidance of democratic personalities was overwhelming (p. 297). (Italics in original).

REVIEW AND CRITIQUE

The classic research—which had a great effect on subsequent investigation—was conducted by Lewin, Lippitt, and White (1953) who studied the effects of authoritarian and democratic leadership on groups of boys whose task was making paper mache masks. They found that there were least interpersonal conflict, least aggression, least scapegoating, and highest morale in groups with democratic leaders. The largest number of masks was produced by groups with authoritarian leaders, though democratic groups were capable of more sustained work when the leader was not present than were authoritarian groups. Laissez-faire groups showed both low morale and low productivity.

A multitude of studies investigating authoritarian and democratic leadership followed the research of Lewin, *et al.* However, the results have been disappointing. It is still impossible to demonstrate that either of the two styles is most closely associated with high productivity or high morale. After an extensive review of the literature, Hare (1959) offered the conclusion that democratic leadership is associated with low productivity and high morale whereas authoritarian leadership is associated with high productivity and low morale.

This conclusion demands serious qualification, however, on the basis of situational factors. The finding that morale is high in democratic groups holds for such groups as fraternities, sororities, boys' clubs, grade school classes, therapy groups, and temporary groups (Adams, 1943-1946; Anderson, 1937, 1939; Bovard, 1951, 1952; Bills, 1952, 1957; Deignan, 1956; Faw, 1949; Flanders, 1951; Hemphill, 1949; Lewin, 1953; McKeachie, 1951, 1954; Perkins, 1951; Rasmussen, 1956; Roseborough, 1953; Sheldon and Landsman, 1950; Thelen and Whithall, 1949; White and Lippitt, 1953; Wischmeier, 1955; Zeleny, 1940.) but does not always hold in military groups, business groups, and college classes (Berkowitz, 1953; Guetzkow et al., 1954; Hemphill, 1949; Heyns, 1949; Krumboltz, 1955; McCurdy and Lambert, 1952; Wispe, 1951). Some of the discrepancy in research findings may be accounted for as follows: Democratic leadership is associated with high morale when a primary group goal is social, as in the case of the recreational and fraternal groups, or emotional catharsis, as in the case of the therapy groups. Morale is higher under authoritarian leadership, however, in groups which are primarily committed to some task goal rather than a social-emotional goal.

The picture is also somewhat cloudy in regard to productivity. There is wide agreement that authoritarian leadership is most effective when the task is simple and concrete (e.g., Adams, 1954). Some investigators claim that democratic groups are most productive when the task is a complex one requiring insightful behavior, and particularly when it requires cooperation between members. This finding has not been supported by all studies, however. For example, McCurdy and Lambert (1952) compared "miniature dictatorships and democracies" on a switching problem involving cooperation and found no difference in number of correct choices.

Some dramatic evidence often cited to support the contention that democratic leadership results in superior productivity compares democratically led discussions with lectures. These studies, which are summarized by Lewin (1953), generally show that after a democratically led discussion there is more change in behavior than after a lecture. In one representative study conducted during World War II, six groups of Red Cross volunteers were asked to increase their use of beef hearts, sweetbreads, and kidneys. Three groups were given "attractive lectures . . . which linked the problem of nutrition to the war effort" and included recipes for preparing "delicious dishes" from the three meats (pp. 287-288). In each of the other three groups a discussion was started in order to get housewives to use the three meats "without attempting any high pressure salesmanship" (p. 288). After the discussions the women were asked to show, by raising their hands, who was willing to try one of these meats within the next week. Women attending lectures were not asked to make a decision. According to the results of a follow up study, only 3% of the women who heard lectures served one of the meats never served before, while of the women who took part in the group discussion and decision, 32% served one of them.

This difference in behavior could be due to the discussion, the decision, or both. Lewin himself emphasized the importance of the decision, though he felt that people are "more ready . . . to make a decision after a group discussion than after a lecture" (p. 290). Proponents of democratic leadership techniques have tended to overlook the possible significance of the decision. They choose to believe that this study—and other similarly ambiguous studies by followers of Lewin—demonstrates that democratic methods of leadership are superior to lectures and, by implication, to authoritarian leadership in general.

The relative influence of discussion and decision on changes in behavior has been examined by Bennett (1955). This study, which is fully discussed by Festinger (1957), was concerned with getting students to volunteer to serve as subjects in psychological experiments at the University of Michigan. A third of the subjects heard a lecture which tried to persuade them to volunteer, another third (in groups of thirteen) engaged in discussions about the desirability of volunteering, while the final third was simply reminded that requests would be made for volunteers. One-fourth of the subjects from each group was not asked to make any decision about volunteering. The remaining three-fourths were asked to make a decision, some anonymously, some publicly. The subjects of the three groups were matched according to their responses to a questionnaire about their attitudes toward volunteering for psychological experiments. Thus one may regard the subjects in each of the experimental groups as having the same initial willingness to volunteer. Shortly after the "treatment" the experimental subjects were sent letters requesting them to come to a certain place at a certain time if they wished to volunteer. The percentages of subjects from the lecture, discussion, and "simple reminder" groups who showed up at the designated time and place were 22, 21, and 19 respectively. In other words, the lecture, discussion, and simple reminder were equally effective in persuading people to volunteer. The data show, however, that 15% of the "no decision" subjects (N equals 135) volunteered, whereas 22% of the subjects (N equals 338) who had been asked to make a decision showed up. Bennett (1955) reported that this difference was significant at the .07 level of confidence. These data suggest that changes in behavior should be attributed to making a decision rather than engaging in discussion. Perhaps the greater magnitude of change following decision in the Lewin food studies stems from the fact that, unlike the lecture groups, the discussion-decision groups were told that there would be a follow-up study (Lewin, 1953, p. 293).

Research findings from educational investigations are especially contradictory. We cannot state with any certainty that either teacher-centered or learner-centered methods are associated with greater learning. Some researchers claim superior learning for learner-centered groups. (Allport, 1950; Bovard, 1952; Brandwein, 1958; Faw, 1949; Flanders, 1951; Neuman, 1957; Perkins, 1951; Peters, 1948; Sheldon and Landsman, 1950; Thompson and Tom, 1957; Zeleny, 1940). In one of the early investigations, Zeleny (1940) conducted a series of five small experiments with college classes in sociology, found a slight advantage for learner-centered groups in each case. Faw (1949) showed that college students in non-directive groups learned more about psychology than did students in directive groups. Similarly, Allport (1950) has reported that students in a college social relations course believed they learned more in permissive than in directive sections. Thompson and Tom (1957) found that students in learner-centered groups acquire and retain significantly more information about dairy farming than do those in teacher-centered groups. Unfortunately, the observed superiority of learner-centered groups in this study cannot be attributed wholly to the classroom behavior of the teacher since elaborate steps were taken to provide students from learner-centered groups with a chance to carry out dairy projects at home, whereas students from teacher-centered groups were insured of no such opportunity. Perkins (1951) has reported that teachers attending in-service classes in educational psychology with permissive instructors made more comments indicative of psychological insight than those in teacher-centered classes. Flanders (1951) found that pupils taught by a learner-centered teacher showed superiority over the students of an autocratic teacher in the acquisition and retention of four principles of human relations. After observing three science classes under autocratic, laissez faire, and democratic conditions, Brandwein (14) felt that students in the democratic situation learned more. A study of "non-directive group therapy with students in academic difficulty" (Sheldon and Landsman, 1950) shows marked superiority for the non-directive over the directive method. In the same vein, Neuman (1957) found that students who learned lists of words using their own techniques showed better recall than students directed to use a learning technique developed by a group of psychologists familiar with verbal-learning research.

A number of investigations have found no difference between learner-centered and teacher-centered methods. (Bills, 1952; Deignan, 1956; Eglash, 1954; Farquhar, 1955; Haigh and Schimidt, 1956; Landsman, 1950; McKeachie, 1951; Ostlund, 1956; Rasmussen, 1956; Rehage, 1951; Slomowitz, 1955; Smith and Johnson, 1952; Wispe, 1951). In a typical study, Wispe found no over-all difference between groups on the objective part of a final examination in an introductory college course in social relations, but did find that students of low ability did better if taught by teacher-centered methods.

Using content analysis of discussion transcripts to measure learning, Ostlund (1956) found slightly greater learning on the part of learner-centered groups; however, the difference was statistically significant for only one index of learning. It may be wondered whether the Ostlund study and other similarly inconclusive investigations would have showed a significant advantage for learner-centered methods if the treatment had lasted longer. With a few exceptions, the longest experiments have run no more than a semester. Many have been only a few weeks in duration. If we are to believe proponents of democratic teaching, our schools are essentially authoritarian, and it may take considerable exposure before students become acculturated to learner-centered methods. A study by Peters (1948) which lasted two years is suggestive in this respect. Peters found a slight advantage for democratic teachers at the end of the first year, which became a marked superiority by the end of the second year. Directly opposed to the Peters' finding is a survey study of sixty-six history teachers and twelve hundred and seventy-five students by Brookover (1943), who found a significant negative relationship between student ratings of teachers' permissiveness and mean gains in information on a history test. In Brookover's words, "Apparently the students like the friendly teachers better, but they learn more when taught by the more authoritarian ones." (p. 300).

It is also argued that investigations which use final examinations as a measure of learning and which fail to remove anxiety connected with grades provide an inadequate comparison of teacher-centered and learner-centered methods. It is suggested (McKeachie, 1951) that in a truly democratic situation no external authority would evaluate achievement. Rather, each student would provide his own internal yardstick, evaluating his own progress. Under these conditions, it is argued, learner-centered groups would probably show superiority. A series of experiments at the University of Michigan illustrate this point nicely. In the original experiment Guetzkow, Kelley, and McKeachie (1954) found that students in teacher-centered groups showed slight superiority on a final examination. What is more, morale was higher in teacher-centered groups, and students in these groups expressed more desire to take additional courses in psychology and major in psychology than did students from other groups. Subsequently, McKeachie (1951) conducted an experiment in which an effort was made to reduce grade anxiety. He found no difference on a final examination. In a companion study, Bovard (1952) found that students in the learner-centered groups showed greater insight into psychological processes than students in the teacher-centered groups. Haigh and Schimidt (1956) found that "when students are permitted to choose between a teacher-centered and a group-centered class and when the students in the group-centered class are not required to learn subject matter by the examination-grade system there is no significant difference between these two types of classes at the end of the term" (pp. 301-302). However, reducing the anxiety surrounding grades provides no guarantee that learner-centered groups will do as well or better than teacher-centered. This is evidenced in a study by Asch (1951) in which the instructor-centered group achieved higher grades on both objective and essay portions of a final examination in psychology, despite the fact that the score on the examination was not a basis for grading in the learner-centered group.

One other factor may weigh against discovering possible advantages inherent in the learner-centered method. It may be that the sorts of learning best implemented by teacher-centered methods are measured with relative ease, whereas the more intangible learnings of learner-centered groups elude quantification. A study by DiVesta (1954) is enlightening in this respect. He found greater gains on knowledge and attitude tests for students taught by the instructor-centered method, but superior improvement in leadership skills for students taught by the learner-centered method. Rehage (1951) conducted an investigation of teacher-pupil planning in which he found no difference between groups on measures of learning and attitude change, though the experimental group did much more extra work, seemed to have more insight into the process of group planning, and seemed to have more interest in the subject matter than did the control group. Anderson (1956) found that the group taught by a directive teacher recalled much more information than other groups while the non-directive group scored significantly higher on a measure of interest in the subject studied than did the directive group.

In addition to the studies cited above, Burke (1956), Husband (1951), and Ward (1956) all have reported greater learning in teacher-centered groups.

To summarize the educational research reviewed in this article, eleven studies have reported greater learning for learner-centered groups, thirteen have shown no difference, and eight have found teacher-centered methods superior to learner-centered. It should be noted that while some investigations have reported a *statistically* significant difference favoring one method or other, it is doubtful if any of these differences are of *practical* or *social* significance. Some writers, such as Bills (1957), argue that despite—or because of—the failure to find a striking difference in regard to learning, we should prefer the learner-centered method because of its greater association with high morale and psychological well-being.

It is a rather general finding that morale is higher in learner-centered groups (e.g., Thelen and Whithall, 1949). The only exceptions to this generalization appear to occur in situations in which there is high anxiety about grades which are awarded on the basis of final examination scores (Guetzkow et al., 1954; Krumboltz, 1955; Wispe, 1951).

There are probably several factors, in addition to the suggestions above, which contribute to the confusing and contradictory pattern of research findings. The first of these is lack of methodological rigor and inadequate research design.[1] Furthermore, many experimenters in this field display a surprising lack of familiarity with other research. This is evidenced by bibliographies which fail to list any experimental studies of authoritarian-democratic leadership styles except, of course, Lewin, Lippitt, and White. Study after study has been conducted with basically the same conception and execution and in apparent isolation from other research. The results of twenty years of investigation remain embarrassingly non-cumulative.

Another serious defect in this research stems from the fact that operational definitions of leadership styles have lacked precision. Herein lies an important reason for contradictory findings. The present author believes that the lack of precise operational definitions of leadership styles is symptomatic of a larger problem: the authoritarian-democratic construct is an inadequate basis for research because, for one thing, it presumes to summarize the complexity of group life into a single dimension. There are probably many variables of leadership and group life. Hemphill (1949), after analysis of some five hundred existing groups, arrived at sixteen descriptive variables.

[1] For a critical review of some of the authoritarian-democratic studies which pays some attention to methodological problems, see Roseborough (1953). See also McKeachie (1954), who discusses the teacher-centered—learner-centered controversy in an analysis which stresses methodological shortcomings and weak experimental design.

Factor analyses of Hemphill's variables (Gekoski, 1952), as well as several factor analyses by Carter and Couch (1953), yield three dimensions which the present author likes to interpret as follows:

1. *The Affective area.* Includes degree of interpersonal warmth or coolness, tension or relaxation; degree of antagonism or solidarity. Opposes friendly pleasant exchange to hostility and constraint.

2. *The Procedural area.* Includes statement and control of agenda, control of communication, division of labor. Refers to amount of structure and degree of organization as opposed to degree of disorganization or looseness of structure.

3. *The Task area.* Includes quantity and quality of work done, units produced, ideas presented, solutions considered. Opposes solution reached, problem solved, high performance maintained to no solution, problem unsolved, poor performance. Productivity versus sterility.

No doubt there are other dimensions and subdimensions yet to be conclusively identified. In view of the probable complexity of leadership, the authoritarian-democratic construct appears to be an ill-defined and oversimplified conception of leadership variables. As such this construct cannot be defended on functional grounds. To say that a style of leadership is authoritarian does not adequately describe the behaviors which the leader actually exhibited. Very likely many studies, all of which labeled leadership styles in the same way, actually differed a great deal at the concrete level of what the leaders said and did. These variations in behavior could, of course, lead to variable results. Use of these simplifying labels tends to limit our thinking about leadership. For example, because we have grown used to thinking of the authoritarian leader as impersonal, cool, and sometimes hostile, the possibility of a leader who maintains complete control of the decisions of the group and yet is friendly and personal does not seem very real to us.

Moreover, the words "authoritarian" and "democratic" contain surplus meanings. The proliferation of synonyms for "authoritarian" and "democratic" can be interpreted as an effort to escape the normative overtones of the original terms; in other words, an effort to be "objective." "Authoritarian" and "democratic" have been purposely used in this paper because the present writer believes that behind the facade of objectivity expressed in less-loaded words there lurks an essentially moralistic interpretation of leadership by many researchers and theorists and the bulk of the popularizers.

It serves no practical or scientific objective to prove that unreasonably extreme leadership types are ineffective; yet, there is reason to feel that a number of researchers have been led to this specious demonstration by the moralism inherent in the authoritarian-democratic conceptualizations. The greatest number of studies in which the "bad" leadership type is overdrawn have a democratic bias. Cronbach (1954) has put this point very well, stating that,

> When teacher-control was branded as "autocracy," and contrasted with so-called "democratic" teaching, all the research seemed to be trying to prove that teacher-control cannot possibly work. These studies are usually made by training some leaders to use each particular style of leadership, so that different styles can be compared. Almost without exception, the dominative leaders are taught to be harsh, to use hostile comments in criticizing students, and to discourage student initiative. This means that we lack research on friendly, adaptable teacher control, which is the pattern most teachers are presently trying to use. (pp. 455-456).

It is hard to tell how many investigations have been seriously damaged by the biased distortion of one of the leadership styles. A handful of studies is clearly affected, as shown by protocols and incidents reported as well as by descriptions of leadership behavior. This bias has probably operated to a marked degree in a number of other studies, and to some degree in most investigations.

This leads directly to a further and very serious inadequacy in the authoritarian-democratic conceptualization. Even if, as the present writer contends, "authoritarian" and "democratic" conveys a grossly over-simplified picture of leadership behavior, it would still be possible to defend these concepts if there were some good reason for believing that the complex of behavior which "democratic" or "authoritarian" seem to encompass is likely to be associated with high productivity and high morale. Unfortunately no such mediating body of theory and knowledge exists. This statement is probably true of most areas of applied social science, and it is certainly applicable to educational research. There are no adequate notions of how the authoritarian-democratic construct is related to learning. With the exception of a few clinically-derived, *ad hoc* hypotheses emanating largely from the Rogerian school of psychotherapy and *The Authoritarian Personality,* the research on leadership styles seems to flow more from ethical generalization than from scientific hypothesis. Much of the research on teaching methods in the last twenty years seemed bent on discovering whether "The meek shall inherit the earth," or whether, on the other hand, "Nice guys lose."

Whatever the motivation behind it, a principle difficulty of research in teaching methods—and leadership research in general—has been the rather low level of empiricism. Teacher-centered and learner-centered methods have been repetitiously investigated not because there were well conceived ideas as to *how* one would lead to superior learning, but merely to find out *if* one style was superior to the other. We were not fortunate enough to find that one method is consistently better than or even consistently different from the other; thus, we are now forced to explore new avenues. In short, the authoritarian-democratic construct, as far as education is concerned at least, has far outlived its usefulness either as a guide to research or as an interpretation of leadership behavior.

CONCLUSION

The evidence available fails to demonstrate that either authoritarian or democratic leadership is consistently associated with higher productivity. In most situations, however, democratic leadership is associated with higher morale. But even this conclusion must be regarded cautiously, because the authoritarian leader has been unreasonably harsh and austere in a number of investigations reporting superior morale in democratic groups. In the educational setting, morale appears to be higher under learner-centered conditions, at least when anxiety over grades is reduced.

The authoritarian-democratic construct provides an inadequate conceptualization of leadership behavior. When a satisfactory body of knowledge about learning in social situations is available it will then be possible to describe the behaviors which a teacher can exhibit to achieve a given learning outcome. It seems reasonable to suppose that leadership styles or teaching methods emanating from knowlege about learning will have a higher probability of meeting criteria of effectiveness than do *a priori* styles or methods. At least, studies based on two *a priori* styles have not led to consistent or easily interpretable results.

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The Effectiveness of Large Group Instruction at the University Level[1]

In order to educate a greater number of students, most colleges and universities have been forced to enlarge the size of their class groups. At Miami University a research team is comparing the learning outcomes—in terms of objective achievement, critical thinking, and attitude change—of large- and small-group instruction in an attempt to evaluate both kinds of educational experience. The present article discusses data obtained during the academic year 1957-58 and interprets them in light of the general findings of the investigation. The authors hope that such studies will indicate ways to improve the quality of large-group teaching.

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THE ANTICIPATED INCREASE in the number of students applying for admission to the nation's colleges and universities is a point that need not be labored here. The pressure of enrollment is already beginning to mount in some quarters, leading to renewed concern about the feasibility of instituting or revising procedures for selecting students. In addition, institutions are becoming concerned about procedures that will increase instructional efficiency while, at the same time, maintain or improve the quality of the educational experience. The solution to the general problems created by large numbers of applicants in the face of plant and staff deficiencies must, of course, be a many-faceted one. The present paper summarizes research findings bearing upon just one of several possible solutions: i.e., that of increasing class size.

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[1] Portions of this paper were presented at the annual meeting of the American Psychological Association in September, 1958.

The effect of class size upon educational effectiveness has been a matter of concern to educators, particularly at the elementary and secondary levels, for the past several decades. Recent electronic developments in combination with the mounting pressure of enrollment has stimulated considerable research in this area at the college and university levels. Large scale investigations of the effectiveness of televised instruction in particular have been reported by The Pennsylvania State University and the Chicago City Junior Colleges.

The Experimental Study in Instructional Procedures at Miami University was developed in recognition of the fact that, whether we like it or not, we will probably be forced into an increased use of large-group teaching procedures in the relatively near future. Consequently, the primary purpose of the Experimental Study is the dual one of investigating the effectiveness of large-group instruction, including televised teaching, and of finding ways of improving upon the quality of the educational experience thereby provided for the students.

Two reports summarizing the work of the Study for the period 1955-1957 have been issued.[1] [2] The present paper presents evaluative data only for the 1957-1958 academic year. An overall picture begins to emerge, however, when the results of the three years' investigations are considered *in toto,* and these general impressions are discussed along with the presentation of data for the specific year under consideration.

EXPERIMENTAL DESIGN

Miami University is one of six state supported institutions of higher education in Ohio. It is primarily an undergraduate instructional institution open to all residents of the state who have graduated from an accredited high school. The effect of this admissions policy is to produce quite a range of academic ability in the freshman class, as measured by tests like the ACE. The distribution of scores on this particular test for Miami freshmen closely approximates the distribution obtained on a national basis.

Three general approaches to large-group instruction, each with its own variations, have been investigated: (a) large lecture sections with relatively little discussion in class by the students; (b) large sections taught by a combination of lecture and problem-solving or case-study techniques; (c) multiple sections of approximately 35 students, each receiving simultaneous instruction by closed-circuit television. Sections of these three types are referred to hereafter as *experimental* sections.

Two additional approaches to increased student-coverage by the instructor are under investigation but are not reported in the present paper. These latter procedures involve (a) multiple sections taught by graduate assistants under the supervision of a senior faculty member and (b) independent study by students, with a reduction in the amount of formal contact with the instructor.

Each experimental section was equated with a control section of the same course. These control sections were, with one exception, limited in enrollment to a maximum of 35 students. The exception occurred in the case of Zoology, where televised instruction was compared to large lecture instruction rather than to small class instruction. The course content, final examination and instructor were constants in the experimental and control section of each course.

Students in the experimental and control sections of each course were routinely equated on the basis of tests of proficiency in mathematics and English as well as a test of academic ability (the American Council on Education Examination for College Freshmen). In addition, when feasible, the sections were equated on the basis of scores on a pretest of subject-matter knowledge and on grade-point average during the previous semester. A final matching variable was proportional distribution of students within each section by class standing.

Eleven courses, each containing experimental and control sections, were studied during the 1957-1958 academic year. The experimental sections of three of these courses, (Air Science, Educational Psychology and Zoology) were taught over closed-circuit television. Five courses were experimentally taught as lecture sections wherein the extent of discussion and classroom participation by the students was minimal and determined by each individual instructor. These five courses were Chemistry, Freshman Composition, Second Year French, Psychology, and Government. One course, Marketing, was taught entirely by the case method modeled after the instructional procedure at the Harvard University Graduate School of Business Administration. Two additional courses, History of Western Civilization and Geography, were taught by the lecture method combined with the presentation of problems for solution by subgroups of students. The degree of responsibility and participation of individual students in these latter two courses was somewhere between that experienced in the lecture courses and that experienced in the case approach.

SUMMARY OF FINDINGS

The evaluation of instructional effectiveness in all courses focused upon three primary areas: achievement, students' attitudes about the course and the instructor, and students' attitudes about the mode of instruction.

Achievement

The distribution of scores on the objective portions of the final examinations administered in the experimental and control sections of each course are summarized in Table I. The column headed *N* in this and subsequent tables indicates the number of students from each section included in the equated groups. These tests were scored by allowing one point for each correctly answered item. Differences between means were tested for significance by computing t-ratios. T-ratios that are statistically significant at the five percent level of confidence or better are marked with an asterisk.

The difference between mean achievement of students in experimental and control sections is statistically significant only in the case of Geography, second semester. With the possible exception of this one instance, it is quite evident that achievement as measured by the objective final examination was not adversely affected by instruction in classes that are larger than conventional size.

The data in Table I may obscure differences in achievement as a function of academic ability. How does the achievement of low ability students in large classes, for example, compare with the achievement of low ability students in small classes? In order to answer this question and its parallel for high ability students, matched experimental and control sections were dichotomized on the basis of academic ability. The cutting score for this dichotomization was the fiftieth percentile on the ACE. Mean examination scores of "high" ability students in the experimental section of each course were compared to mean scores earned by students of similar ability in the conventional sections of the same course. Comparable analyses for "low" ability students were also conducted. In general, these data lead to the conclusion that ability does not interact with section assignment as a joint determinant of achievement.

The two findings noted above have been replicated in virtually all of the research thus far conducted within the framework of the Experimental Study in Instructional Procedures. It is apparent that objective final examination scores are not adversely affected by large group instruction and that high ability students perform equally well on such tests regardless of the instructional procedure. The low ability subgroup is occasionally, but not often, penalized by assignment to a large class (including television) rather than to a small class.

An additional point bearing upon the matter of achievement has been investigated. Data like those presented in Table I are open to question because the definition of achievement in terms of the objective final examination can be quite sterile. Such examinations tend very frequently to be restricted in coverage by requiring retention of facts and principles. Although important, this probably represents a lower level of achievement than do the functions often referred to as synthesis, problem-solving, critical thinking and the development of course-related attitudes. These latter criteria were applied to the evaluation of six of the courses studied during the 1957-1958 academic year. The measures for these studies are described below.

TABLE I

Differences between Mean Scores on Objective Final Examinations in Experimental and Control Sections

	First Semester 1957-'58				*Second Semester 1957-'58*			
Course and Section	*N*	*S.D.*	*Mean*	*t-ratio*	*N*	*S.D.*	*Mean*	*t-ratio*
Air Science								
Television	104	11.64	71.93	0.82	70	4.44	35.09	1.69
Control	19	9.59	74.00		18	5.05	32.83	
Educational Psychology								
Television	186	11.29	73.47	0.90	159	9.41	83.58	0.27
Control	32	8.71	75.06		29	6.69	83.97	
Zoology								
Television	148	2.18	6.09a	0.16	127	23.66	132.64	0.38
Lecture (Control)	66	2.06	6.04a		57	19.70	131.37	
Chemistry								
Lecture	172	32.59	103.00	0.46	129	36.30	115.40	1.21
	25	33.92	99.60		19	32.95	105.26	
French								
Lecture	43	26.83	197.77	1.04				
Control	27	28.69	190.52					
Psychology								
Lecture	103	17.00	100.63	1.06	76	12.57	107.51	0.36
Control	26	11.53	103.65		23	13.25	106.39	
Government								
Lecture	62	6.54	39.63	1.67	54	5.73	33.33	0.62
Control	26	9.74	36.08		19	5.59	32.37	
Freshman Composition								
Lecture	157	7.18	51.49	0.12	120	9.62	69.53	0.28
Control†	90	7.08	50.19		61	8.85	69.93	
Geography								
Lecture-Problem	70	12.71	66.39	0.95	50	10.47	65.92	4.06*
Control	24	10.41	68.92		20	7.35	75.10	
History								
Lecture-Problem	65	16.48	75.49	1.24	50	22.67	93.32	1.25
Control‡	55	17.67	79.42		53	18.52	98.51	

* The difference between means is statistically significant.

a. Based upon a numerical transformation of letter grades wherein 3.00 corresponds to a *D*, 6.00 to a *C*, 9.00 to a *B*, etc.

† Multiple sections taught by different instructors, each of whom also taught an experimental section.

‡ Multiple sections taught by the same instructor.

Misconceptions in Psychology (General Psychology and Educational Psychology). The test consists of "common sense" statements about psychological phenomena to which students are required to respond as true-false items. Each of the statements deals with a situation wherein wide-spread belief conflicts with established psychological principle. The test was administered at the beginning and again at the end of the year.

Stereotypes in Social Studies (History of Western Civilization). This is a Likert-type scale consisting of statements like "Dictatorships inevitably go to war". Students are required to indicate the degree of agreement or disagreement with each statement. The higher the "score," the less stereotyped are the responses. This instrument was administered both as a pretest and as a posttest.

Synthesis in Marketing. Two case-study examinations were administered in the large and small sections of this course—one at midsemester and one at the end of the semester. Each examination consisted of the presentation of a case which students were required to solve in the capacity of a consultant. Their responses were independently graded for rationale of solution by two instructors and discrepancies in grades were arbitrated by the readers.

Biological Science Reasoning and Understanding (Zoology). This is a multiple-choice test that evolved from the Cooperative Study on Evaluation in General Education under the auspices of the American Council on Education. It was designed to measure "...students' ability to read and interpret scientific material written in popular style and to apply scientific information to new situations." It was administered as a pretest and as a posttest.

Themes for Composition and Literature. The ultimate test of students' ability to write for a Composition course is to have them write! Consequently, students were required to write two themes for experimental purposes: one at the beginning of the semester and another on the same topic at the end of the semester. Each theme was independently graded by two readers for mechanics, organization, effectiveness of sentences and diction, and for content as well as for overall quality.

The results obtained with these criteria are summarized in Table II. When a particular test was administered at the beginning and end of the semester or year, data are cited for both administrations along with the appropriate analysis of covariance (F-ratio) controlling on the pretest. Results in Marketing, however, were evaluated by means of t-ratio since pretest data were not available.

The results presented in Table II are, for the most part, indicative of comparable performance on unique measures of achievement regardless of instructional procedure. Significant differences, when they occur at all, do not consistently favor either the control or experimental procedures.

TABLE II

Differences Between Mean Scores on Pretests and Posttests of Problem Solving, Course Related Attitudes, and Synthesis, in Experimental and Control Sections.

Test	*Course and Section*	*Pretest*		*Posttest*		*F-ratio*	*t-ratio*
		S.D.	*Mean*	*S.D.*	*Mean*		
Biological Science Reasoning	Zoology						
	Television	6.42	23.34	6.21	28.87		
	Lecture (Control)	6.19	25.09	5.59	30.82	1.05	
Misconceptions in Psychology	Ed. Psych.						
	Television	11.69	55.97	8.61	61.21		
	Control	5.02	60.33	4.91	65.42	0.09	
Misconceptions in Psychology	Gen. Psych.						
	Lecture	6.73	56.70	6.21	66.64		
	Control	7.46	58.30	4.50	67.83	0.39	
Sterotypes in Social Studies	History						
	Lecture-Problem	9.28	6.56	8.03	13.94		
	Control	11.14	3.05	8.80	9.68	0.10	
Synthesis in Writing†	Freshman Comp.						
a. Mechanics	Lecture	3.66	6.24	3.51	7.34		
	Control	3.60	6.21	3.06	7.40	0.27	
b. Organization	Lecture	2.55	5.94	2.41	7.50		
	Control	2.55	6.39	2.35	7.38	1.97	
c. Sentences & Diction	Lecture	2.16	6.68	2.22	7.27		
	Control	2.10	6.99	1.97	7.74	0.06	
d. Content	Lecture	2.57	6.04	2.29	7.51		
	Control	2.35	6.97	2.45	7.57	6.63**	
e. Overall Grade	Lecture	2.76	4.94	2.77	6.50		
	Control	2.94	5.61	2.50	6.86	1.40	
Synthesis in Marketing†							
a. First Exam	Case-Large Class			2.22	6.10		
	Case-Small Class			1.60	7.14		2.21*
b. Second Exam	Case-Large Class			2.17	5.55		
	Case-Small Class			2.65	5.80		0.39

* Mean difference is statistically significant.

** The improvement from pretest to posttest was significantly greater in the Lecture group than in the Control group.

† Mean scores are numerical transformations of letter grades whereby a *D* is converted to 3.00, *C* to 6.00, *B* to 9.00, etc.

Students' Attitudes about the Course and the Instructor

Data pertaining to students' attitudes about the course and the effectiveness of the instructor were obtained from the administration of two attitude scales in the experimental and control sections of each course. These scales have a theoretical neutral point of 5.00. "Scores" below the neutral point are favorable whereas "scores" above the neutral point are unfavorable. The results obtained from the administration of these scales are presented in Table III. The courses are letter-coded in this Table in order to prevent comparisons between the ratings obtained by specific instructors.

Table III contains some evidence for the generalization that instructors and their courses tend to be rated somewhat less favorably by students in experimental (large) sections that by students in control (small) sections. A noteworthy exception to this generalization, however, occurred in Course E.

Students' Attitudes about the Mode of Presentation

Students in general, prefer instruction in small classes to instruction in large classes, regardless of whether these classes are offered by television, the lecture approach, or the case and problem approach. There is, as might be expected, considerable variation from course-to-course in the extent to which attitudes toward large-group instruction are less favorable than toward small-group teaching. Also, within every experimental section there are always some students who prefer large-group instruction to conventional instruction.

Although students' attitudes toward the mode of instruction were surveyed by means of Thurstone-type scales, these attitudes may be conveniently summarized by examining responses to two items included within a longer questionnaire administered at the end of the semester. Students currently in experimental sections were asked to indicate whether they would enroll next semester in the experimental (televised, lecture or case-study) section or the conventional section of a course under the following two sets of circumstances:

1. When the experimental and conventional sections were taught by the same instructor (whom the student likes) and are given at desirable hours.
2. When the instructor in the experimental section has the reputation of being an excellent teacher, whereas the student would have to take his chance on instructor assignment in the conventional section.

Students' responses to these two items at the end of each semester for which data are available are summarized in Table IV. The courses have again been letter-coded.

It is quite apparent from the data in Table IV that the instructor is a more critical factor in determining the type of section selected than is the size of the instructional group or the specific mode of instruction. The

TABLE III

Differences Between Mean Scores on Attitude Scales in Experimental and Control Sections

Course and Section	*Attitude toward the Course*			*Attitude toward the Instructor*		
	SD	*Mean*[1]	*t-ratio*	*SD*	*Mean*[1]	*t-ratio*
A						
Experimental	1.17	3.76	2.46*	1.24	3.99	2.10*
Control	0.96	3.12		1.09	3.38	
B						
Experimental	1.10	3.80	1.67	1.13	4.02	0.55
Control	0.98	4.10		0.95	3.92	
C						
Experimental	1.14	4.04	1.53	1.06	3.47	3.36*
Control	1.07	3.78		0.91	3.00	
D						
Experimental	1.12	4.49	1.00	1.11	3.82	0.04
Control	0.98	4.21		0.89	3.81	
E						
Experimental	1.04	3.56	0.92	1.03	3.28	2.18*
Control	1.07	3.80		1.17	3.89	
F						
Experimental	1.09	3.77	2.88*	1.09	3.17	1.35
Control	0.82	3.28		1.06	2.90	
G						
Experimental	1.11	3.52	0.88	1.27	4.34	1.47
Control	1.08	3.31		1.37	3.81	
H						
Experimental	1.14	4.85	2.62*	1.01	4.21	2.08*
Control	0.98	4.17		0.91	3.67	
I						
Experimental	0.48	3.88	1.59	1.05	3.08	0.25
Control	0.71	3.61		1.11	3.01	
J						
Experimental	1.12	4.74	1.47	1.20	3.54	0.45
Control	1.11	4.30		0.69	3.44	
K						
Experimental	1.24	4.06	0.24	1.37	3.91	0.40
Control	1.24	4.02		1.50	3.99	

[1] The lower the mean, the more favorable is the attitude.

* The difference between means is statistically significant.

overwhelming majority of students indicated that they would elect an experimental section if it would assure them of receiving instruction from a teacher of known excellence.

Students are, in general, less favorably inclined toward large-group instruction in comparison to conventional instruction at the end of the second semester than they are at the end of the first semester. Notable exceptions to this generalization occurred in courses *E* and *G* which are the letter designations in Table IV for the two courses taught by a combination of the lecture and problem approach. Thus the increased involvement of individual students by this procedure does indeed appear to result in more favorable student attitudes than does the straight lecture procedure.

DISCUSSION OF FINDINGS

It seems quite apparent that large-group instruction does not have deleterious effects upon achievement as measured within the framework of the present study. The issue of comparative achievement under the experimental and conventional conditions of instruction is, however, far from settled. This is so, in the first place, because of possible defects in the criterion instruments that purport to measure achievement. Additional research based upon the use of unique measures emphasizing other kinds of achievement than the retention of facts is sorely needed. Second, achievement as measured in this study and others in the literature has, for the most part, been restricted in scope to immediate rather than to long-term retention. We are presently investigating the matter of comparative effects

TABLE IV

Percentage of Students Choosing to Remain in Experimental Section under Two Sets of Circumstances

	Instructor is Constant		*Instructor Varies*	
Course	*First Semester*	*Second Semester*	*First Semester*	*Second Semester*
A	29	11	84	65
B	38	21	92	87
C	14	14	46	67
D	29	26	59	80
E	41	44	95	84
F	24	16	83	82
G	37	48	89	93
H	30	16	89	83
I	—	24	—	90
J	19	—	79	—
K	24	—	82	—

of large-group as opposed to conventional instruction upon retention after several semesters. Finally, the data here presented have been restricted to the effects of large-group instruction upon the achievement of a student enrolled in a single course. This is a somewhat unrealistic situation. As we view the overall curriculum, it is likely that students will be required to take not one, but several courses in large groups. Thus we are currently combining data across courses in order to determine whether or not the effects of large group instruction tend to accumulate.

The finding that students, in general, prefer conventional instruction to large-group instruction is not particularly surprising. The expectations about instructional procedure developed in the primary and secondary schools predispose students to this preference. It will be interesting to note the effects, if any, of large-group instruction (primarily televised) currently being received by some grade-school and secondary pupils upon their subsequent expectations as university students. In spite of the bias for conventional instruction still prevalent at some institutions, at the present time there is an indication that large-group instruction is more palatable to college students when they are given an opportunity to participate than when they are are not given such an opportunity. Students' attitudes toward large-group instruction in contrast to conventional instruction become more favorable, for example, in problem-oriented classes than in classes wherein the instructor devotes himself almost entirely to the delivery of lectures.

It must be noted also that the instructor is probably the most important determinant of student attitude toward the mode of instruction. Variations in attitude between courses seem to reflect much more the students' attitudes toward the effectiveness of the instructor than they do the attitudes toward the mode of instruction *per se*.

A number of problems remain as stumbling blocks to the improvement of large-group teaching. Facilities for such instruction are quite generally inadequate, and most university and college teachers are ill-prepared in the techniques of such instruction. In addition, the concept of a "normal" teaching load for teachers of large classes needs redefinition. Finally, the matter of cost is particularly pertinent when considering the use of television for instructional purposes, and when attempting to develop the visual aids necessary for effective large-group teaching.

1. Macomber, F. G., and Siegel, L. *Report No. 1, Experimental Study in Instructional Procedures*. Oxford, Ohio: Miami University, 1956.
2. Macomber, F. G., and Siegel, L. *Report No. 2, Experimental Study in Instructional Procedures*. Oxford, Ohio: Miami University, 1957.

From Moral Philosophy to Sociology
Albion Woodbury Small

Albion Woodbury Small is representative of a group of American scholars whose careers started in the "old-time" denominational colleges and ended in the newly formed departments of the social sciences. Trained in Germany like many of his colleagues, Small was a leader in the development of sociology as a discipline.

Jurgen Herbst, a recent recipient of a Ph.D. from Harvard University, is an assistant professor in history and education at Wesleyan University, Middletown, Connecticut.

JURGEN HERBST
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WHEN IN 1876 the Johns Hopkins University opened its doors a new era had begun in American higher education. The "old time" college with its aim of a general education for the training of character was joined by land-grant colleges and graduate schools. These new institutions of higher learning provided vocational and specialized professional instruction, and among them the graduate schools of arts and sciences developed as the training ground for future scholars, college teachers, scientists, and public officials.[1]

Those graduate schools that were founded after 1876 patterned their organization primarily after the model of European universities, and more particularly after the Philosophical Faculty of German universities.[2] At the Johns Hopkins, Herbert Baxter Adams conducted his historical seminar as he had been taught at Heidelberg and Berlin.[3] At Columbia John William Burgess drew on his experiences from Göttingen, Leipzig, and Berlin, and organized the School of Political Science after the plans of the Ecole Libre des Sciences Politique in Paris and the Cameralistic Faculty of the then German University of Strassburg.[4]

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[1] For a general description of trends in higher education see R. Freeman Butts, *The College Charts Its Course* (New York and London, 1939), pp. 204-30, and Butts and Cremin, *A History of Education in American Culture* (New York, 1953), pp. 356-458.

[2] For generalized statements see Charles F. Thwing, *A History of Higher Education in America* (New York, 1906), p. 419; John A. Walz, *German Influence in American Education and Culture* (Philadelphia, 1936), passim.

[3] See his "Methods of Historical Study," *Johns Hopkins University Studies in Historical and Political Science,* II (Jan.-Feb., 1884), 1-136.

In similar ways German-trained professors helped shape graduate instruction in American universities from Massachusetts to California and, in doing so, laid the groundwork of the modern academic profession. They founded scholarly professional organizations and published scientific periodicals.[5] They institutionalized the cult of the monograph and through their emphasis on "scientific method" helped to release the pursuit of scholarship from its liason with denominational religion. Above all they trained a generation of graduate teachers and research scholars who assured the continuance and growth of a new tradition of university scholarship.

In Germany this new tradition had been associated intimately with the almost universal vogue of the historical school. The German historicists believed that "the truth" about institutions, customs, or traditions was to be found through historical investigation of the past. To describe the history of an institution was to elucidate its meaning, its importance, its essence. Claiming the universal applicability of the historical method, its disciples could be found among philologists and theologians as well as among social scientists of every discipline.[6]

In their desire to make the historical method as scientific as possible, the historicists joined the revolt of the natural scientists against the natural philosophy of the eighteenth century and proclaimed their hostility toward the pretensions of speculative philosophy. Based on the hypothesis of the inner unity of all branches of knowledge the speculative philosophers had sought to extract from historical phenomena their common characteristics, to formulate the laws which governed them, and to abstract from these data and laws the essence of the reality which underlay the cosmos. They had worked within the general methodological framework of the idealistic philosophers, and had produced their masterpiece with Hegel's philosophy of history.[7]

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[4] See R. Gordon Hoxie, et al., *A History of the Faculty of Political Science, Columbia University* (New York, 1955). Cf Burgess, *The American University: When Shall It Be? Where Shall It Be? What Shall It Be?* (Boston, 1884), and his "The Founding of the School of Political Science," *Columbia University Quarterly*, XXII (Dec., 1930), 351-75.

[5] H. B. Adams, Andrew D. White et al. were instrumental in founding the American Historical Association in 1884. In 1882 Adams had published the first volume of the *John Hopkins Studies*. Burgess started the *Political Science Quarterly* in 1886, and the *Columbia Studies in History, Economics, and Public Law* in 1891. In economics Richard T. Ely, another German-trained scholar, helped found the American Economic Association in 1885, and as its secretary edited the *Publications of the AEA*. Albion Small was the first editor of the *American Journal of Sociology*.

[6] For the origins of the historical school see Herbert Butterfield, "The Rise of the German Historical School," *Man on his Past* (Cambridge, England, 1955), pp. 32-61.

[7] For an expression of the German view on the superiority of rational speculation over fact-finding research and inductive generalization see Jacob Burckhardt's letter to Karl Fresenius in Burckhardt, *Briefe*, ed. Fritz Kaphahn (Leipzig, n.d.), pp. 58-59.

It was against this school of history that Ranke flung his famous challenge to study history as it really was, to shun fabrications and phantasms, and to tell "the bare truth, without embellishment."[8] Rejecting both natural and speculative philosophy the historicists turned to their colleagues in the natural sciences and adapted to their own purposes the laboratory procedures of observation, of verification by experimental and comparative analysis, and of induction of general rules from verified data. Thus history and with it scholarship in the social sciences became "scientific."[9]

With the introduction of the historical method to America the new, "scientific" age of American higher education began. The search for new truth replaced the training of character as the purpose of higher education. Thus the traditional moral philosophy course for college seniors—once the capstone of a collegiate education—slowly disappeared from college curricula and was replaced by instruction in the social sciences.[10] Religion, the mother-discipline of the old-time college, lost ground before the rising prestige of scientific method, and was itself subjected to scientific, critical inquiry.

American higher education thus passed out of the hands of churchmen and came under the guidance of scientists. The ideal teacher no longer was the moral philosopher who impressed upon his students the verities and values of religion, but the ever-inquiring searcher after new knowledge who measured truth in terms of its conformity to standards of scientific accuracy.[11]

Such, at least, are the ideal pictures of the scholar, old and new. Few men of those who guided graduate instruction during the twenty years from 1876 to 1896 resembled either of the two types pure and simple. Rather, they all embodied elements of both to various degrees. Quite frequently they were torn in their allegiance. They felt a vague uneasiness, felt guilty of betraying an inherited religious tradition, and guilty also of not being able to attain the rigorous scientific standards demanded by their German masters. Theirs was, of course, a dilemma shared by pioneers in every area of life.[12]

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[8] Leopold von Ranke, *Zur Kritik Neuerer Geschichtsschreiber* (Leipzig and Berlin, 1824), p. 28.

[9] Rudolph Virchow, "The Founding of the Berlin University and the Transition from the Philosophic to the Scientific Age," *Annual Report of the Board of Regents of the Smithsonian Institution . . . to July 1894* (Washington, 1896), pp. 681-95, gives the death of Hegel (1831) and the return to Prussia of Alexander von Humboldt (1827) as turning points in the university's course from philosophic speculation to empirical investigation. For a general discussion of this shift see John Theodore Merz, "The Scientific Spirit in Germany," *A History of European Thought in the Nineteenth Century* (Edinburgh and London, 1896), I, 157-225.

[10] For a detailed elaboration of the role of moral philosophy as a forerunner of the social sciences see Gladys Bryson, "The Emergence of the Social Sciences from Moral Philosophy," *International Journal of Ethics,* XLII (April, 1932), 304-23, and her "The Comparable Interests of the Old Moral Philosophy and the Modern Social Sciences," *Social Forces,* XI (Oct., 1932), 19-27.

[11] See George P. Schmidt's two volumes, *The Old Time College President* (New York, 1930), and *The Liberal Arts College* (New Brunswick, 1957).

I

Albion Woodbury Small was born in 1854 in Buckfield, Maine, as son of a Baptist minister. As a youngster Albion grew up in a devoutly religious household where Sundays began with church attendance in the morning and continued with Bible study in the afternoon. The boy was not allowed to play in the street with his friends, but he did not mind. He rather cherished the meditative stillness at home and imbibed willingly the dogmas of an orthodox theology which stressed the sinfulness of the world and man's responsibility for the thoughts and actions of his neighbors.[13]

In 1872 Albion's father sent him to Colby University at Waterville, Maine. During the 1870's Colby was one of the many denominational colleges which provided their students with the customary non-professional Christian education. In his senior year Small took the moral philosophy course which then consisted of a three-term program in intellectual philosophy, ethics, and political economy. It was taught by the college president, the Rev. Henry E. Robins, D.D.[14] The prescribed reading emphasized ethical and psychological topics, yet for Small, Francis Lieber's books on political science made the deepest impression.[15] After graduation in 1876 Small complied with his father's wishes, and enrolled at Newton Theological Institution. Notwithstanding the theological character of the Seminary, Small continued his readings in history, political economy, and politics. These interests persuaded him not to follow the clergyman's career for which he was trained, but instead to join the scholars' migration to Germany.

In the fall of 1879 Small registered at the University of Berlin. He attended the lectures of Adolf Wagner[16] whose economic theory highlighted for Small the role of the state as supervisor and arbiter of what he later came to call "the social process." Small spent the next year at Leipzig, Weimar, and London. At Leipzig he became acquainted with Wilhelm Roscher's historical approach to national economy,[17] and read widely in the writings of the Strassburg economist, Gustav Schmoller,[18] a representative of the ethical school.[19] Just before his return to the United States Small gave proof of his quiet yet resolute courage when he married Miss Valerie von Massow, the daughter of an aristocratic Prussian general, against the wishes of the bride's family.

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[12] For a more detailed analysis of this problem as it affected the German-trained academic pioneers in the social sciences during this period see the author's dissertation, "Nineteenth Century German Scholarship in America: A Study of Five German-Trained Social Scientists" (Harvard U. Archives, 1958). The five scholars analyzed are H. B. Adams, John W. Burgess, R. T. Ely, F. G. Peabody, and Albion Small.

[13] On Small's life and importance for the history of sociology see E. C. Hayes in *American Masters of Social Science*, ed. Howard W. Odum (New York, 1927), pp. 149-87; H. E. Barnes, T. W. Goodspeed, and A. M. MacLean in the *American Journal of Sociology* [hereafter abbr. *AJS*] XXXII (July, 1926), 1-48; Louis Wirth in the *Encyclopedia of the Social Sciences*, XIV (New York, 1934), pp. 98-99.

[14] See the *Catalogue of . . . Colby University . . . for the Academic Year 1875-76* (Waterville, 1875), p. 19. The textbooks read in the course were James T. Champlin, *Text-Book in Intellectual Philosophy* (Boston, 1860), Noah Porter, *The Elements of Intellectual Science* (New York, 1871), and Daniel Seely Gregory, *Christian Ethics* (Philadelphia, 1875).

[15] See Small, "Fifty Years of Sociology in the United States," *AJS*, XXI (May, 1916), 728, n. 1.

[16] Adolf Wagner (1835-1917), after 1870 professor of national economy and statistics at Berlin, served in the Prussian Diet from 1882 to 1885. In politics he was a socially-minded conservative; in economics he opposed the historical school and stressed a theoretical, systematic approach.

In 1881 Colby College recalled Small to become professor of history and political economy. Small held this post for seven years and in addition taught public speaking. During these years he became a critical disciple of the historical school to which he had been exposed in Germany. He accepted the German quest for objectivity and scientific research methods, but warned of the dangers of pettiness and pedantry. He found himself in substantial agreement with the institutional school of American historians as it thrived under A. B. Hart at Harvard and under Herbert B. Adams at the Johns Hopkins.

In 1888 Small took his sabbatical leave to write his doctoral dissertation on "The Continental Congress" under H. B. Adams. He chose the Johns Hopkins because of its fame as a representative of German research methods and ideals. As we might expect, research under Adams strengthened Small's tendency to view history as a description of institutional growth. But Small questioned the Teutonic origin theory of democratic institutions and the Johns Hopkins dogma of history as past politics.[20] Instead he called for the study of political and constitutional "occurrences in their relation to the thoughts and passions of the whole people . . ."[21] Had he remained a practicing historian he would have exchanged institutional history for the newer social history.

While Small thus disagreed with the historians of the institutional school, he shared with them the belief in historical method and in the adaptation to history of concepts and methods of the natural sciences. Just as H. B. Adams had taught his students that books were to be treated "like mineralogical specimens, passed about from hand to hand, examined and tested,"[22] so Small called for "experience in physical, chemical, and biological investigation," as an "ideal preparation for sociological research . . ." Laboratory discipline, he held, was the indispensable prerequisite for scientific study in every field.[23]

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[17] Wilhelm Roscher (1817-1894), founder of the historical school of national economy, taught at Göttingen and, after 1848, at Leipzig.

[18] Gustav Schmoller (1838-1917), taught at Halle, Strassburg, and Berlin. With Karl Knies he founded the *Verein für Sozialpolitik* (1872) for the propagation of scholarly research and practical social and economic reform. Small thought the *Verein* to be "the most clearly defined, the most energetic, and the most comprehensive attempt ever successfully undertaken by academic men in the way of social construction." In *The Meaning of Social Science* (Chicago, 1910), p. 252.

[19] The ethical school in economics comprised scholars of the historical school, solidarists, professorial and state socialists. They were united in their desire to merge their scientific with their ethical concerns and to influence social and economic legislation. The foremost American spokesman of this school was Richard T. Ely. See his "Ethics and Economics," *Science Economic Discussion* (New York, 1886), p. 53.

[20] He later also rejected racial theories of civilization as "ingenious speculation" and as "dogmas in folk-psychology." "The Scope of Sociology," *AJS*, V. (Jan., 1900), 520.

[21] "Von Holst on American Politics," *Civil-Service Reformer*, IV (Dec., 1888), 141.

But even more than a common belief in the methods of the natural sciences, it was a common commitment to the social responsibilities of scholarship that united Small with the pioneers of the historical school. Small and many of his German-trained colleagues tended to view ethical questions in the light of their religious background. But when they sought to apply their German learning in America and to approximate the social and political influence of German professors, they spoke in academic rather than religious language and centered their efforts on the reform of colleges and education rather than of churches and religion.

In his reform efforts Small never broke with the Baptist religion of his youth and, in contrast to many of his German-trained colleagues, never joined the Social Gospel. For him sociology, a science closely related to ethics, supplemented a fundamentally orthodox theology. It illumined deficiencies of the present rather than hopes for the future. Reform and progress did not arise from a joyful certainty of salvation, but from a "consciousness of sin."[24] "The fulcrum of social progress is consciousness of misery distributed among the social atoms," wrote the budding sociologist, and not "the nostrum of popular education." The task for social leadership, he expostulated, was to create "profound social discontent, through the discovery and demonstration of human relations out of joint."[25]

Upon completion of his dissertation Small was recalled to Colby to assume the presidency of the college. It now was his duty to teach the traditional moral philosophy course for seniors. The years of patient research into historical, political, and economic problems now bore fruit in his announcement to substitute lectures on sociology during the third term for the "moral science" of Calderwood and Janet.[26]

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[22] Adams, "Methods of Historical Study," *op. cit.*, 103.

[23] Small and Vincent, *An Introduction to the Study of Society* (New York, Cincinnati, Chicago, 1894), p. 24.

[24] "The New Religion does not abate one jot from the sinfulness of sin . . ." In "Religion and Higher Education," *The Watchman*, Oct. 10, 1889, p. 1.

[25] In "The Dynamics of Social Progress," *Preceedings of the 60th Annual Meeting of the American Institute of Instruction* (Concord, New Hampshire, 1889) pp. 9 and 12.

[26] Henry Calderwood, *Handbook of Moral Philosophy* (London, 1872), and Paul Janet, *Elements of Morals*, trans. from the French (New York and Chicago, 1884).—Cf. the *Catalogue . . . of Colby University for . . . 1889-90* (Waterville, 1889), p. 25, where Small's course is listed as "Sociology.—Development of Modern Philosophies of Society: Comte, Schaffle [sic], Spencer, Lieber, Lotze, Ward. *Five hours a week . . .*"

It took courage for the newly elected president of a denominational college to disturb the tradition-conscious and religious-minded thinking of trustees and parents with the introduction of such "atheistic" writers as Comte, Spencer, and Ward. Small justified his innovation by pointing to the inevitable rise of a "science of society" in harmony with the scientific temper of the age, and by stressing the importance of training Christian leadership for this new movement. The new social science movement was not to be ignored. Rather it was to be channelled and guided by the best minds of society.

Small therefore urged the study of Lester F. Ward's *Dynamic Sociology* as "the most respectable attempt yet made in this country to found a science of society," despite the author's "gratuitous and illogical depreciation of Christianity."[27] The college, Small stated in his presidential inaugural address, was to combine instruction with inspiration, and to develop the power of independent thought. Notwithstanding its service to the Christian religion the college first of all was to be a place of scientific instruction. "I am bound to say," Small told his listeners, "that it is unreasonable and cruel to demand that the college shall make good the failure or neglect of the Sunday school, the church, and the family."[28]

The ultimate science, Small admitted in Boston at about the same time, will be theology but, he added, "if I am not mistaken, the most earnest seekers after God are . . . growing more and more in contact with the development of a science . . . of God's image, or the science of human welfare." This science, which Small modestly called "the science of all sciences," was sociology. It opened up a new field of inquiry to scientific investigation and gave substance and stimulus to a "New Religion" which differed "from the old very much as the new Political Economy differs from the old." This new religion as well as the new political economy sought "the society of human beings in order to know them just as they are," wrote Small.[29] Within the ranks of the Baptist church Small saw himself as the apostle of this new religion based on the "science of all sciences."

As a transitional stage in the development from the moral philosophy course of the denominational college towards the social science curriculum of a modern university, Small's sociology lectures at Colby united the nineteenth century ethical aims of character training with the rudimentary demands of modern instruction in science. A religiously motivated man at heart, Small sought to overcome the antithesis of religion and science and to harmonize the legitimate demands of both. Christianity provided the purposes and ends of life; sociology suggested methods and ways by which the former could be attained. "The tendency of sociology must be toward an approximation to the ideal of social life contained in the Gospels," Small wrote in 1890.[30]

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[27] "The Dynamics," p. 15.

[28] *The Mission of the Denominational College* (Waterville, 1889), p. 11.

[29] In "Religion and Higher Education," *op. cit.*, p. 1.

Such assumptions created problems and threatened to invalidate the claim to scientific objectivity. Did they not betray a return to a "theological system?" Small asked himself. "I admit the appearance, but deny the reality," he answered. Theological considerations were valid objects of and guiding principles for sociological investigation in as much as "the declarations of Christ" were reiterated by the world's experience which in turn appeared to indicate "permanent directions of rational thought." Small held the ideals expressed in the Gospels to be "the presumptive goal towards which rational Sociology is tending."[31] This was rather flimsy argumentation, to be sure, and it illumines the strong hold on the pioneer sociologist of the image of the "old-time college president" as the guardian of Christian education.

II

In 1892 Small's pioneering work at Colby earned him an invitation to the new University of Chicago as head professor of the social sciences. From Chicago Small began his crusade for the recognition of sociology by the academic world. In 1895 he founded the *American Journal of Sociology*. For thirty-one years a steady stream of articles poured from his pen to encourage and direct the growing flood of sociological investigation. Under his editorship the *Journal* became the most highly respected sociological periodical of international reputation. It helped to make sociology the "American science," as the new field was called in Europe.

The derivation of Small's early lectures on sociology from the old moral philosophy course imparted to his concept of sociology a distinctly ethical note. Sociology, defined by Small as the science of man in his totality, was the direct descendant of the philosophy of history. It sought to place man into some specific, purposeful relationship with his fellow-men and with his creator.

For Small this relationship implied a rejection of laissez-faire individualism with its belief in the establishment of social harmony through the beneficent working of natural laws. Growing social unrest belied natural harmony and called upon science to analyze the causes of social and economic discontent. Sociological inquiry disproved the claims of complacent "stand-patters" and deflated the doctrines of visionary reformers and agitators. "In the Hegelian idiom," Small wrote, "conventionality is the thesis, Socialism is the antithesis, Sociology is the synthesis."[32]

Once sociological investigation had unearthed all the facts of a situation, the scholar's duty was to speak out and act. As strongly as Small attacked the superficial reformer he berated the ivory-tower professor. Scholars who insulated science from the world of business and politics, he held, merely professed a "pathetic solicitude about the sanctity of science." Sociology was not "the amusement of recluse philosophers, . . . [but] a frank attempt to assist in supplying a real popular demand." The scholar's task was to provide leadership for the reforms necessitated by the industrial revolution.[33]

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[30] *Introduction to the Science of Sociology*, syllabus (Waterville, 1890), p. 81.

[31] *Ibid.*, pp. 90-91.

[32] Small and Vincent, *op. cit.*, p. 41.

In his rejection of laissez-faire individualism Small charged nineteenth century economists with having suppressed the ethical convictions of Adam Smith. For Smith, Small wrote, the production of wealth had been incidental to its consumption. Only through the work of the ethical school in Small's own time was economic theory returning "to a basis of moral philosophy, in perspective rather than in content like that upon which Adam Smith rested his economic reasoning."[34] Like many of his German-trained colleagues in economics, Small held that the cooperative principle must accompany the competitive principle of American enterprise. The "ultimate function of sociology," he wrote, "is to discover the principles of cooperation by application of which human society may adopt the most effective means of securing happiness."[35]

Still, Small was temperamentally unsuited for a life of active reforming. The primary task of the scholar, he insisted, was not to reform but to understand society. The precise establishment of facts must precede the recommendation of reforms. Good intentions, he declared, were not enough. In fact, they were mere window-dressings to hide the ulterior motives of the religious zealot. Thus Small condemned crackpots and "addle-brains," rejected such single-factor panaceas as civil-service reform, equalized taxation, or industrial arbitration, and remained suspicious of any kind of enthusiasm, whether in science or in religion.[36] He therefore charged "the vigorous pioneers who had organized the American Economic Association" with "putting excessive stress upon projects for improving economic activities, and often for improvement of activities which were less economic than something else, while they were neglecting the crying fundamental need of probing into the deeper nature of human society, human resources, and human wants."[37]

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[33] See his "Shall Science be Sterilized?" *AJS*, XIX (March, 1914), 651, and "The Sociologist's Point of View," *ibid.*, III (Sept., 1897), 145.

[34] Small, *Adam Smith and Modern Sociology* (Chicago and London, 1907), pp. 3 and 11.

[35] "The Relation of Sociology to Economics," *Journal of Political Economy*, III (March, 1895), 183.

[36] See his "Sanity in Social Agitation," *AJS*, IV (Nov., 1898), 335-51, and "Scholarship and Social Agitation," *AJS*, I (March, 1896), 564-82. Cf. also his contemptuous dismissal of "that futile Kantian wraith 'the good will' " in his review of Dole, *The Ethics of Progress*, in *AJS*, XV (Nov., 1909), 419, and his sharp rebuke of the self-styled Christian sociologists for their "unspeakable affrontry." In "Minor Editorials," *AJS*, I (Jan., 1896), 510.

Small's dislike of emotional reformers and protest rallies also explains his equivocal stand on the issue of academic freedom. Believing that logic and reason, guided by understanding and benevolence, would ultimately right all wrongs, he chided his colleagues who publicly protested infringements of academic expression and the alleged dominance of business interests over higher education. He spoke of a "mechanically manufactured alarm." Scholars, he held, never had enjoyed unrestricted freedom, since academic freedom always implied a high measure of responsibility. "The American professor whose digestion is good and who has escaped brain-fag has all the freedom that he wants."[38] The best defense against the encroachment of business on scholarship, he lectured, lay in the constant improvement of standards of research.[39]

As Small had rejected the theology of the Social Gospel he also refused to support the work of the institutional churches. He believed that the churches' main task was to "aim first and foremost, and with dignified confidence, to mind their own business of worshipping and calling to worship." While he thus accentuated the spiritual function of the churches, he did not absolve them from all social responsibility. But he transferred this responsibility from the churches as institutions to their members as individuals. "The churches should regard it as merely a provisional and clumsy expedient if they are compelled as churches to do social work which is due from the worshippers."[40]

Small's critique of the "Christian sociologists" and of the Social Gospel was accompanied by his own effort to develop a sociologically grounded theory of ethics. Ethics had to free itself from bondage to metaphysical speculations about the "absolute truth," and it no longer could be regarded as a branch of applied biology. Instead it was to be based on psychology and related to sociology, economics, and anthropology. Shorn of its claims to infallibility and of its total dependence on the doctrines of the Social Darwinists, ethics, as envisaged by Small, was to be derived from continuous empirical observations. Its demands at any given time could therefore only be provisional.[41]

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[37] In "Fifty Years," *op. cit.*, 768.

[38] "Academic Freedom—Limits Imposed by Responsibilities," *Arena*, XXII (Oct., 1899), 471.—Once a concrete case of violation of academic freedom arose, which involved Small's fellow sociologist E. A. Ross at Stanford, Small showed that he was not quite as unaffected by this occurrence as he professed to be. See his letter to Lester Ward, published by B. J. Stern in *Social Forces*, XV (Dec., 1936), 184.

[39] Cf. his "Immoral Morality," *The Independent*, LV (March 26, 1903), 710-14.

[40] "The Church and the Social Problem," *The Independent* (March 7, 1901), p. 539.

[41] Cf. Small's review of Taylor, *The Problem of Conduct*, in *AJS*, VII (July, 1901), 122-25.

Small gave his most succinct exposition of ethics in his paper on "The Significance of Sociology for Ethics." His main thesis was that "every ethical system with a concrete content virtually presupposes a sociology." The first task of any ethical theorist thus was to familiarize himself with the progressing investigations of social scientists who had already made "some approximate analysis of . . . the content [of the social process] . . ."[42]

The significant result of the sociologists' researches lay in their definition of the social process as on-going. Small thus could write that "the indicated end of the process is *more of the process,* i.e. more intensive and extensive satisfaction of all the interests."[43] For ethics this meant that "if we represent to ourselves any good whatever as a complete and closed finality, we do so by suspending the thought-process." Altered conditions require new adjustments. Even though "our definitions of good may not go beyond the statical form, . . . the implications of all our conceptions of good are virtually dynamic."[44] Ethics, then, was a dynamic science, and, Small expostulated, "the ultimate social end which we can discover is progressive improvement in so accommodating ourselves to each other that increasing proportions of the world's population will share in a constant approach toward more and better satisfaction of the health, wealth, sociability, knowledge, beauty, and rightness desires."[45]

Progressive improvement as the ultimate social end and ethics based upon scientific observation are concepts familiar to us through the instrumental philosophy of John Dewey.[46] The similarity of Small's and Dewey's views finds its partial explanation in the close geographical and intellectual proximity in which they worked. Dewey had come to Chicago two years later than Small, and remained at the university for ten years as head of the Department of Philosophy and Education until 1904. In 1897 Dewey and Small published a small volume which appeared under the title of Dewey's essay, *My Pedagogical Creed*. Small's contribution, "Some Demands of Sociology upon Pedagogy," vigorously rejected the philosophy of the "Committee of Ten," which held education to be an "affair of perception, reflection, and judgment alone," and it endorsed Dewey's demand for the education of the "whole child."[47] In 1901 Small called for the frank recognition of professional training as the purpose of college education, and he asserted with Dewey that "culture shall be obtained . . . as an incident thereof."[48]

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[42] In *University of Chicago Decennial Publications* (Chicago, 1902), IV, 113-49. Quotations are from pp. 113 and 115.

[43] "The Scope of Sociology: IX," *AJS,* X (July, 1904), 32.

[44] "The Significance of Sociology for Ethics," *op. cit.,* 124.

[45] *Ibid.,* 141.

[46] In *Reconstruction in Philosophy* (New York, 1920), p. 177, Dewey defined the end of social life as "the active process of transforming the existent situation. Not perfection as a final goal, but the ever-enduring process of perfecting, maturing, refining is the aim in living. . . . Growth itself is the only moral 'end'." In *Human Nature and Conduct* (New York, 1922), p. 12, Dewey wrote that "morals based upon concern with facts and deriving guidance from knowledge of them would at least locate the points of effective endeavor and would focus available resources upon them."

Similarities between Dewey's and Small's thinking can be found in other areas as well. Small repeatedly cited Dewey's recognition of observable facts and of consequences of actions as the ultimate arbiters of human decisions. He praised Dewey for having brushed aside the philosophies of the past as mere rationalizations,[49] and he applauded the appeal to results as the distinct differentiating mark of modernism from medievalism in ethics.[50] Where Dewey defined "interest" as "impulse functioning with reference to self-realization," Small termed "interest" to be "an unsatisfied capacity, corresponding to an unrealized condition," which was "a predisposition to such rearrangements as would tend to realize the indicated condition."[51] The two Chicago professors breathed the same atmosphere of modernism in education, and their pronouncements had a similar ring.[52] In Small we can follow not only the rise of a new science, but likewise the transition from the idealistic-religious era of the old moral philosophy to the age of relativity and pragmatism.

III

Science derived its authority from the perfection of its methodology. Once Small turned his attention to the development of sociological methodology, his early views on sociology as the successor of the philosophy of history lost their relevance. From being a "synthesizing science" in the Spencerian sense, sociology now became "a division of knowledge coordinate with the other social sciences, but commanding techniques for the understanding of human experience conceived as the group interrelations and interactions of men."[53]

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[47] Small's essay had first appeared in the report of the 1896 meeting of the National Education Association at Buffalo, and also in the *AJS*, II (May, 1887), 839-51. The quotation is from p. 843.

[48] "The Next Steps in College Development," *University Record* (June 28, 1901), p. 35. F. R. Clow credits Dewey and Small together with Herbert Spencer and W. T. Harris with having brought under way the teaching of sociology in normal schools. See Clow's "The Rise of Educational Sociology," *Journal of Social Forces*, II (March, 1924), 332-37.

[49] In "Technique as Approach to Science—A methodological Note," *AJS*, XXVII (March, 1922), 649.

[50] In review of Dole, *Ethics of Progress, op. cit.*, 420.

[51] Quoted by Small in "The Scope of Sociology: IV," *AJS*, VI (July, 1900), 64 and 65, n. 1.

[52] A third Chicago professor whose thought shows definite similarities with that of Dewey and Small was George Herbert Mead. He wrote that "the ends of conduct are not to be determined in advance, but in view of the interests that fuller knowledge of conditions awaken." For this and similar statements see his "Scientific Method and Individual Thinker," *Creative Intelligence: Essays in the Pragmatic Attitude* (New York, 1917), pp. 223ff.

[53] Statement by Louis Wirth in "Albion Small," *Encyclopedia of the Social Sciences* (New York, 1934), XIV, 98-99.

Misconceptions in Psychology (General Psychology and Educational Psychology). The test consists of "common sense" statements about psychological phenomena to which students are required to respond as true-false items. Each of the statements deals with a situation wherein wide-spread belief conflicts with established psychological principle. The test was administered at the beginning and again at the end of the year.

Stereotypes in Social Studies (History of Western Civilization). This is a Likert-type scale consisting of statements like "Dictatorships inevitably go to war". Students are required to indicate the degree of agreement or disagreement with each statement. The higher the "score," the less stereotyped are the responses. This instrument was administered both as a pretest and as a posttest.

Synthesis in Marketing. Two case-study examinations were administered in the large and small sections of this course—one at midsemester and one at the end of the semester. Each examination consisted of the presentation of a case which students were required to solve in the capacity of a consultant. Their responses were independently graded for rationale of solution by two instructors and discrepancies in grades were arbitrated by the readers.

Biological Science Reasoning and Understanding (Zoology). This is a multiple-choice test that evolved from the Cooperative Study on Evaluation in General Education under the auspices of the American Council on Education. It was designed to measure "...students' ability to read and interpret scientific material written in popular style and to apply scientific information to new situations." It was administered as a pretest and as a posttest.

Themes for Composition and Literature. The ultimate test of students' ability to write for a Composition course is to have them write! Consequently, students were required to write two themes for experimental purposes: one at the beginning of the semester and another on the same topic at the end of the semester. Each theme was independently graded by two readers for mechanics, organization, effectiveness of sentences and diction, and for content as well as for overall quality.

The results obtained with these criteria are summarized in Table II. When a particular test was administered at the beginning and end of the semester or year, data are cited for both administrations along with the appropriate analysis of covariance (F-ratio) controlling on the pretest. Results in Marketing, however, were evaluated by means of t-ratio since pretest data were not available.

The results presented in Table II are, for the most part, indicative of comparable performance on unique measures of achievement regardless of instructional procedure. Significant differences, when they occur at all, do not consistently favor either the control or experimental procedures.

TABLE II

Differences Between Mean Scores on Pretests and Posttests of Problem Solving, Course Related Attitudes, and Synthesis, in Experimental and Control Sections.

		Pretest		*Posttest*			
Test	*Course and Section*	*S.D.*	*Mean*	*S.D.*	*Mean*	*F-ratio*	*t-ratio*
Biological Science	Zoology						
Reasoning	Television	6.42	23.34	6.21	28.87	1.05	
	Lecture (Control)	6.19	25.09	5.59	30.82		
Misconceptions in	Ed. Psych.						
Psychology	Television	11.69	55.97	8.61	61.21	0.09	
	Control	5.02	60.33	4.91	65.42		
Misconceptions in	Gen. Psych.						
Psychology	Lecture	6.73	56.70	6.21	66.64	0.39	
	Control	7.46	58.30	4.50	67.83		
Sterotypes in	History						
Social Studies	Lecture-Problem	9.28	6.56	8.03	13.94	0.10	
	Control	11.14	3.05	8.80	9.68		
Synthesis in Writing†	Freshman Comp.						
a. Mechanics	Lecture	3.66	6.24	3.51	7.34	0.27	
	Control	3.60	6.21	3.06	7.40		
b. Organization	Lecture	2.55	5.94	2.41	7.50	1.97	
	Control	2.55	6.39	2.35	7.38		
c. Sentences	Lecture	2.16	6.68	2.22	7.27	0.06	
& Diction	Control	2.10	6.99	1.97	7.74		
d. Content	Lecture	2.57	6.04	2.29	7.51	6.63**	
	Control	2.35	6.97	2.45	7.57		
e. Overall	Lecture	2.76	4.94	2.77	6.50	1.40	
Grade	Control	2.94	5.61	2.50	6.86		
Synthesis in Marketing†							
a. First Exam	Case-Large Class			2.22	6.10		2.21*
	Case-Small Class			1.60	7.14		
b. Second Exam	Case-Large Class			2.17	5.55		0.39
	Case-Small Class			2.65	5.80		

* Mean difference is statistically significant.

** The improvement from pretest to posttest was significantly greater in the Lecture group than in the Control group.

† Mean scores are numerical transformations of letter grades whereby a *D* is converted to 3.00, *C* to 6.00, *B* to 9.00, etc.

For Small this recognition of sociology as a separate and coordinate discipline took place during the late 1890's.[54] It resulted first in a conscious effort to separate clearly the field of sociology from the field of history.

Having exchanged history for sociology, the prophet of the new science turned against his former fellow-historians and accused them of neglecting the "lateral" aspects of history, of spurning the social sciences, such as ethnology, economics, jurisprudence, and sociology. Taking a shot at the historical method, Small wrote that the historians had learned well how to write, but that in the process they had forgotten what they wanted to write about.[55] To have changed their interests "from relatively insignificant kings and soldiers to equally insignificant common folks" was no reform, as the social historians claimed, but merely a shift in topic.[56] In short Small held that historians, lacking sociological methods, were no longer adequately prepared to continue their task. Only the sociologist, reconstructing the social whole at any given moment, possessed tools with which to make history meaningful.

Small's tool was the "social process" concept which he had developed simultaneously with the Austrian sociologist Ratzenhofer.[57] Sociologists analyzed the process by studying the behavior of selected groups and by defining their behavior as being determined by distinctive interests. This inquiry drew attention to the psychology of group behavior, and social psychology developed as a special field. In 1916 Small thus announced: "In sociology, this reaction from omnibus interpretations [of the philosophy of history] to study of rather definitely bounded units of experience is a distinctive mark of the present stage of thinking."[58]

Small, however, did not realize how long he remained under the spell of the philosophy of history. He liked to think that his break with the "omnibus interpretation" had occurred as early as the mid-eighties when he read Lester Ward's *Dynamic Sociology*.[59] But in 1895 he still denied that sociology could discover new facts and asked that it recombine the abstractions of the economic, the physiological, the social, the intellectual, the aesthetic, and the ethical man "into a synthetic, scientific concept of the real man."[60] As late as 1903 he defined the sociologist as the "man who tries to fill the place in our scientific age which the old-fashioned philosopher occupied in the age of metaphysical speculation."[61]

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[54] See "Fifty Years," *op. cit.*, 791.

[55] In "The Methodology of the Social Problem," *AJS*, IV (Sept., 1898), 235-56, and (Nov., 1898), 384.

[56] "The Subject Matter of Sociology," *AJS*, X (Nov., 1904), 293.

[57] See Small's letter to Ward, Nov. 10, 1898, ed. Stern, *op. cit.*, 181. In Small's sociology the social process concept replaced the use of the biological analogy which Small had taken from Schaeffle, *Bau und Leben des Sozialen Körpers*. In "The Organic Concept of Society," *Annals of the American Academy*, V (March, 1895), 745, Small recognized the biological analogy as a provisional expedient for want of a more appropriate and unequivocal terminology.

[58] "Fifty Years," *op. cit.*, 834.

[59] "Lester Frank Ward," *AJS*, XIX (July, 1913), 76.

Small never fully relinquished the claim that sociology was the most comprehensive of all the social sciences. Its study object, the social process, brought the sociologist "in the stark presence of social problems," and demanded at the outset the destruction of "the whole miserable trumpery of mechanical partitions between social sciences . . ."[62] Small persistently interwove the process concept with his favorite theme of the unity of science, and in 1906 again defined sociology as "the mapping of the whole scope of human experience as a functional process, in which the elements of human experience get their meaning."[63]

The gradual development of sociology as a modern science and of a sociological ethics was Small's major concern after his coming to Chicago. This endeavour included historical research into the foundations of the new science, and directed Small's attention to the study of German intellectual history. In the process of this intensive preoccupation with German social thought and policy Small adopted the German concept of the organic state as the moral arbiter of social life, subscribed to Henry Carter Adams' thesis of the state as guardian rather than destroyer of economic freedom, and preached the interdependence of individual and state.[64]

The first fruit of Small's German studies appeared in 1909. *The Cameralists,* a typical product of the historical method, long-winded, dull, magisterial, sets forth the principles of a baker's dozen of seventeenth and eighteenth century German political theorists. In the introduction and in the summary, however, Small made a serious attempt to extract meaning from the flood of details and concluded with one of the soundest, most perceptive analyses of German social thought available in the English language.

Small's main thesis was "that the Germans were not as sterile in this field

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[61] In "What is a Sociologist?" *AJS,* VIII (Jan., 1903), 471.

[62] "The Sociological Stage in the Evolution of the Social Sciences," *AJS,* XV (March, 1910), 696-97.

[63] "The Relation between Sociology and Other Sciences," *AJS,* XII (July, 1906), 29. Cf. also his "Sociology," *Nelson's Encyclopedia* (New York, 1907), XI, 284-87.

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[of the political sciences] as it had been their own fashion to suppose." They had developed their particular body of theory within the framework of multifarious states and principalities, but although the latter "were ignoble and obstructive enough," Small felt that they had also fulfilled a positive function: "Each, with its minute cameralistic organizations, functioned like the drill sergeant with the raw levies. The incapable masses of the German people were divided into squads, and disciplined for civic duties, and after the dull drill of centuries were delivered over to the united nation as the most completely socialized citizens in modern European history."[65]

Since Small hoped that eventually the social sciences would construct a comprehensive synthesis of contemporary social phenomena, he advanced tentative conclusions for a comparative sociological analysis of German and American social thought. The end result of the cameralistic training, he argued, was to enhance the welfare of the collective. It thus contrasted with the Anglo-American tradition of individual liberty and laissez-faire. While Small did not wish "to glorify German bureaucracy at the expense of American republicanism," he felt that Americans stood to gain from an understanding of German institutions, and while not adopting or imitating them, they could adapt them to American circumstances.[66]

In 1924 Small published the *Origins of Sociology*, his final and most ambitious attempt to interpret the development of German social thought and to appraise the significance of modern Germany. The choice of title was deliberately programmatic. For Small sociology originated in Germany. American sociologists, he held, "found comparatively little use for Comtean elements,"[67] and Spencer had "lived to hear himself pronounced an anachronism by men who were once his disciples."[68] Sociology, dealing with men as members of groups, could derive no valid inspiration from laissez-faire theorists. Only the Germans who habitually thought of men in their collective actions could be expected to have founded the science of society.

In *The Cameralists* Small had covered early modern German thought and polity. In the *Origins* he concentrated on the resurgence of collectivistic thought in the nineteenth century. The methodological innovations of the historical school of Savigny, Eichhorn, Niebuhr, and Ranke; Roscher's application of the historical method to sociological study; the strong historicism of the professorial socialists in the *Verein für Sozialpolitik:* all had contributed to the reaffirmation of collectivist modes of thought and action.

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[65] *The Cameralists: The Pioneers of German Social Polity* (Chicago and London, 1909), pp. xv and 17.

[66] *Ibid.*, pp. xvi, and 16.

[67] *Origins of Sociology* (Chicago, 1924), p. 316.

[68] In Small's review of Blackmar, *The Story of Human Progress*, *AJS*, II, (March, 1897), 741.

Guided by the historical method the Germans had come "back to themselves," wrote Small, and are now "likely long to remain collectivists."[69]

Although Small welcomed the collectivistic implications of the historical school as a healthy corrective to the dominant laissez-faire school of thought in the United States, he was not blind to the faults of collectivism in general and of German scholarship in particular. As early as 1904 he had warned of a German "hunger for more influence" in the western hemisphere, and in 1913 he ascribed the Germans' latent spirit of aggression to an absence of a "larger morality" and "constructive social virtues which have distinguished Englishmen."[70]

Once war began in Europe Small was dismayed over the German scholars' endorsement of the ruthless struggle for national supremacy. The collectivistic training of centuries now bore results which were uncontrollable in their excesses. Small spoke of the conduct of German scholars—"some of them my own intimate friends"—as "disgraceful and humiliating." He deplored their endorsement of militarism and expressed hope that this "hideous cult" would become "so discredited that no nation in Europe will profess it after this war is done."[71]

Small viewed the war as a struggle of might against right, of deluded phantasy against scientific thought. It was the most vicious fruit of the Hegelian philosophy of the state as reason at its highest power. In Germany this philosophy had been the arch-enemy of the historical school. Its triumph represented for Small the victory of speculation over science.[72] The Germans, Small demanded, had to return to the scientific foundation of the historical school and had to recant once and for all "that most hellish heresy that has ever menaced civilization: There is no god but power, and Prussia is its prophet."[73]

The fatal flaw of German scholarship, Small concluded, lay in its reluctance to train for practical political morality. German historians had always been unable and fearful "to interpret contemporary situations in terms of cause and effect, of means and ends. Their attempt to do this ended with interpretation of the present as an effect of the past. They were panic-stricken when they found others were thinking of controlling the present with a view to causing the future."[74]

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[69] *Origins,* p. 238.

[70] See "Will Germany War With Us?" *Collier's Weekly,* XXXIV (Dec. 10, 1904), 23, and his review of Paul Rohrback, *Der Deutsche Gedanke in der Welt,* in *AJS,* XVIII (Jan., 1913), 575.

[71] In *Origins,* p. 31, and "Germany and American Opinion," *Sociological Review,* VIII (April, 1915), 108.

[72] See his "General Sociology," *AJS,* XVIII (Sept., 1912), 200-14; his reviews of Bülow, *Die Entwicklung der Hegelschen Sozialphilosophie,* in *AJS,* XXVI (May, 1921), 787-88, and of Spengler, *Der Untergang des Abendlandes,* in *AJS,* XXVI (March, 1921), 624. Small described the *Untergang* as a "delicious specimen of the 'echt-deutsch' in thinking" by "an auto-intoxicated Quixote" upon whom had dawned the realization "that the everyday is a manifestation of the All."

[73] "Americans and the World Crisis," *AJS,* XXIII (Sept., 1917), 173.

During the war the German social scientists demonstrated the detachment of their science from practical application and uncertainty whether expert knowledge and skill insured safe common sense in dealing with current social affairs. This was possible, Small pondered, "in spite of the fact that so large a proportion of German social scientists . . . have been in close touch with actual politics."[75]

How could this paradox be explained? Small found the answer in sociological ethics. The Germans had laid the groundwork for sociology, but the new science developed its methodology in America. As an applied science German sociology had remained subservient to an outdated educational philosophy which in America was known as "faculty psychology." This philosophy had been rejected by Small and Dewey in their efforts to place philosophy and education on a sociological foundation. Small thus returned to the message of his paper, "Some Demands of Sociology upon Pedagogy," and concluded: "The collapse of German social science as a guide to political righteousness, or even to farsighted political expediency, during the late war, is an exhibition on a large scale of the falsity of the vicarious conceptions of intellectual training."[76] It underscored the necessity of a reconstruction in philosophy and of a reformulation of ethics in harmony with modern scientific concepts.

IV

The scholar's function as teacher of public ethics remained Small's major concern throughout his career. It supplied the text of his sermons and lectures as college president and moral philosopher; it bade him leave the arid wastes of institutional, political history for the greener pastures of sociology; it spurred him on to develop his theory of sociological ethics.

Stricken with the gospel of the scientific method, Small labored long and hard to combine the scientist's concern for the concrete and the unique with the philosopher's quest for the general and the universal. What was sociology? he asked. Was it one academic discipline among others, applying scientific methods of observation, experimentation, and induction to problems of society? Or did it resemble the old philosophy of history when it hoped eventually to offer a comprehensive explanation of human affairs for the guidance of future action?

Small could not answer the question in these terms. He rather hoped that valid general results would emerge in time from the study of concrete elements in the "social process." The "unity of science"—a concept which he had borrowed from the German idealist philosophers—would guarantee that, no matter which academic discipline attacked a social problem, a comprehensive picture would emerge.

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[74] "The Present Outlook of Social Science," *AJS* XVIII (Jan., 1913), 445.

[75] *Origins*, p. 32.

[76] *Ibid.*

The German historical relativists had protested against the static, immutable laws of rational philosophy and against the dogmatism of natural law philosophy in the name of evolution and of the relatedness of political and social phenomena to their time and locality. Small accepted their strictures against laissez-faire and condemned the system for its obliviousness to historical and sociological conditions which necessitated reform. The basic fault of laissez-faire, Small held, was that it was ahistorical.

It was easy for Small to apply the historical relativism of the Germans to the field of ethics. Convinced of the relevance of social and economic conditions for ethical conduct, Small utilized the historical relativism of his German teachers in his formulation of the sociological theory of ethics. Thus he could fuse the legacy of the Germans with the instrumentalism of his colleague, John Dewey, and develop a contingent ethics which, provisional for each given situation, rejected absolute moral commands.

Small answered the question of how the relativistic, tentative conclusions of a scientific ethics could be reconciled with the unquestionable doctrines of religion by pointing to their agreement on concrete issues. He simply maintained that for him moral commands derived from science agreed in each specific case with those propounded by religion. As long as one did not acknowledge a conflict between science and religion—and Small never did—the findings of modern science supported faith and revelation.

Small's career at Waterville, Leipzig, Baltimore, and Chicago illustrates the history of American scholarship during the fifty years between 1875 and 1925. At Waterville we met Small as a student of the old-time college, as the clergyman-president, and as moral philosopher. At Leipzig he served his German apprenticeship. At Baltimore we found him taking the graduate course for social scientists in Herbert Baxter Adams' seminar on the historical method. At Chicago, finally, the one-time moral philosopher helped formulate the ethics of pragmatism.

Small piloted the American college on its voyage from the age of religion into the age of relativity. He substituted sociology for moral philosophy, empirical investigation for speculative idealism. At the same time he held fast to religion and to the Hegelian belief in the unity of science. On purely pragmatic grounds he overcame the conflict and contradictions of religion and science, and predicted that the progress of science would substantiate the wisdom of faith.

Book Reviews

Reflections on Learning, Howard Mumford Jones. Rutgers University Press, New Brunswick, New Jersey. 1958. 97 pp. $2.75.

This short book is the reduction to print of the Brown and Haley Lectures, given at the College of Puget Sound in 1958 by Professor Howard Mumford Jones. It adds no new ideas to the perennial debate between the humanists and science and displays no significant change in the views long held by this pungent and provocative elder statesman-spokesman of the humanities in America. It reveals the strengths and weaknesses that do not change in him, the rich understanding of and affection for the arts and humanistic scholarship, coupled with an apparently fixed misconception which causes him to insist on splitting Ariel science from Caliban technology, the beautiful and philosophical from the useful and the pragmatic. Such a position could not seriously be held in the modern world save by one examining the field of science through a scratched telescope mounted on the battlements of an ivory tower. But whether his view of this field is clear or obscure, incisive or confused, when he sallies from the tower Professor Jones always carries his standards high and wields his mace manfully.

It is hard to differ with a number of his larger propositions. The threats of Russian technological advances combined with traditional American pragmatism *have* concentrated our national attention on one and only one part of our educational deficiencies and, persisted in, this attention *might* in the long run warp our whole system of education. Practical men *do* give aid to good causes for wrong reasons and it is unfortunate that we need to lavish so much concern on weapons (but we do need to, and incidentally it is because of Khrushchev, not Kapitsa). We *ought* somehow to reconstruct our national attitudes towards learning so that excellence is more highly valued. The doctrine of self-expression *is* inadequate for the arts. We *do* need again to regard mastery of "grammatical form" as necessary and pleasurable in acts of the mind as it is generally recognized to be in acts of the body. The arts and humanities *should not* be regarded as mere "fringe benefits" of a great society. Somehow we *do* need to achieve a better balance between scholarship and creativity, especially in the arts. In this latter difficult area we ought to see to it that the "skill of the grammarian is [not] exalted above the power of the creator" (p. 90) and remember that "poems may be the occasion for scholarship but they should never be merely the excuse for it" (p. 91). In the end the sought-for comprehension will be truly attained only through a proper companionship of philosophy and art, using these terms in their widest sense. To such generalizations one can only echo "Amen."

About details the prejudices of each reader may foster reservations. I found it easy to agree with the strictures against American inconsistency and lack of tenacity in educational matters and with the distinctions between knowledge *of* and knowledge *about* an art. The federal appropriations should not ignore the humanities as they do and here our brothers in Canada put us to shame. I, too, deprecate the fact that the enormous sums for science are inspired not by love of the truth but by fear of the USSR, but it is not clear that there is more than oratorical virtue in deprecating it. Of course the National Educational Defense Act is grossly inadequate and a great and skewed retreat from the fine words of its preamble. Many more defects might have been cited beyond its crass pragmatism and the possibility that its application may distort curricula.

Indeed, I cannot find this potential distortion as ominous as Professor Jones does. The argument is that school facilities for teaching science and foreign languages will be enhanced by matching federal funds while comparable improvements in the humanities will bear entirely on the local purse; that teachers of science will have free rides to summer institutes while teachers of art will have none; that fellowship programs are tagged with the stipulation that "reasonable preference should be given students with good preparation or high aptitude in science or mathematics." From this admittedly unfortunate discrimination Professor Jones concludes that our whole educational system will become distorted, that we will overly favor and perhaps over-produce scientists and engineers. These fears seem to me grossly exaggerated and the current decline in the numbers of engineering students does not support them.

Even after admitting that national funds should encourage all advances in education, might it not be well argued that it is the present system which is distorted against science and foreign languages and that the new bias will no more than provide a better balance? Examine any typical curriculum of the young man or woman who is studying in a liberal arts college but not majoring in science. With its one or at most two distributional requirements in science, does it pay more than lip service to the notion that understanding of science has significance for a non-scientist? Does it take any account of the place of science in a liberal education as Ernest Nagel has so well defined it? (*Daedalus,* Winter 1959. pp. 56 ff.)

Or consider the high-school curriculum and Dr. Conant's suggestion for tightening it which is as drastic as any that has been made. In the first place the proposal relates only to that 15% of the youth whom Dr. Conant calls the "academically talented," who by definition can manage science and mathematics with some commodity. For this small group of students science and mathematics would at maximum occupy one third of the curricular time in high school. Most of the group would have less, while all of the other 85% will have much less. After all the opponents have had their say and cut this down still further, I suggest the apprehension ought to be the opposite of the one Professor Jones suffers. In the end the bias if there is any may turn out to be only against humanistic scholarship and not the humanities themselves and this is probably the *real* problem.

It is not news that Professor Jones writes eloquently. There is an admirable picture of the national hysteria after Sputnik I and another about our deficiencies in the teaching of foreign languages. The writing is at its best when it is describing the depressing national attitude towards learning or telling the history of humanistic scholarship. It offers excellent comment on the divorcement of some scholars from art, on the weaknesses of self-expression as a total doctrine for the artist, on the recent struggle between criticism and scholarship. The pages which contrast our greedy acceptance of the discipline of grammar in the pursuit of sports with our repudiation of a similar discipline in the pursuit of learning are absolutely first class.

Far less admirable are the emotional outbursts against the national overemphasis on science and engineering which do not even jibe with the facts. There are absurd exaggerations such as "it will be the principal purpose of our schools to produce scientists and engineers," (p. 21) or polemics to the effect that as we go all out for science and engineering we will destroy "the nation we have known and loved" (p. 22). At the end of this explosive first chapter Professor Jones continues to get undue mileage (as his colleague Professor Douglas Bush has done) out of a quite unimportant set of predictions by six scientists collected by the *New York Times* in December 1957. The scientists wrote substantial papers for a symposium. From these the *Times* selected brief excerpts of scientific prediction. The prospect for 2057 thus portrayed was admittedly grim. But from this little piece to develop a major attack on the ideals of scientists (and particularly several of this six) is rigorously unscholarly and it is about time a new straw man was put together. Of the same nature is the implication that Charles Darwin lost his aesthetic taste, perhaps injured his intellect and even his moral character by his preoccupation with science and from this that a significant extrapolation can be made. It is easy to cite highly distinguished scientists who have reached ripe old age without suffering melancholia as Darwin did and the humanities have not protected all of their devotees against Darwin's fate. The broad question of what life in the year 2000 is to be like needs to perplex us all—and if humanists are afraid of what untrammeled science will make of it they had best begin to try to understand science so that their ameliorating influence can be effective. In doing this they will learn that though scientists may try objectively to predict what a world will be like, it does not follow that it is their ambition to make it so.

There are some other errors of misinterpretation. The great expansion of technological institutes after the Civil War was *not* principally related to the participation of scientists and engineers in armed conflict but rather due to the explosive expansion of industry and technology in the last half of the nineteenth century which both fostered these institutes and was fostered by them. The National Science Foundation was *not* created as Professor Jones suggests "largely for purposes of defense," (p. 21) but quite to the contrary. The ways in which the kinds of pure science he admires were first supported by the Office of Naval Research and how this led in time to the National Science Foundation are not hidden away in classified documents but are available to any historian or critic. Courses in the humanities in professional schools have not been designed "to undo the damage which plans of professional education have done" (p. 53) and teachers in such schools who approach their jobs in that spirit are quite likely to fail. The intelligence of young engineers cannot quite so glibly be dismissed as of "a particular sort used for particular ends" (p. 54) though they may ask blunt and even naive questions of their humanities teachers. The task is not mainly "one of making the arts appear as something more than a meaningless or an agreeable diversion, a vacation from the real purpose of going to school" (p. 54). To some extent this is a problem with all students. My years with engineering students would lead me to believe that this generalization is sometimes true of them, more often false, and that a great deal depends upon whether the humanist teacher imagines himself as a missionary to reform "the plumbers" or in the better light of a colleague joining with others, whose naïveté does not betray either their integrity or their capacity, in a common search for beauty and truth.

As he has before, Professor Jones seeks to drive a hard distinction between science and scientific hardware, between the philosophical mind which he welcomes into the stockade of the humanities and the technological savages who must prowl outside. Lines like these are entirely hypothetical. The virginity which Professor Jones would like to elevate in science does not exist and if it did it might well end by being associated with sterility.

It is even more to be regretted that Professor Jones, working on his own familiar ground, has not succeeded in making the strongest possible case for extensive public support of humanistic scholarship. Indeed, in this book he does not make as clear distinctions as he does in the contemporary *One Great Society*[1] in which he has worked things out more carefully if with less excitement. The creative humanities, the humanities as practiced by American poets, novelists, composers, musicians, playwrights, architects, painters and sculptors, have never, I submit, been more widely or generously supported than in our own technological time. The great past humanistic works are certainly widely read and once in a while, like *Oedipus* or *Hamlet* are introduced to further millions on TV, in a useful way, after all reservations have been recorded. Professor Jones explains in general terms our debt to various humanistic scholars but he takes too much for granted in assuming that his reader will automatically either understand the importance of their work or concede it, especially as it is still true that great poets are clearer than their exegeses, and that the *Commedia* is more important than Norton, the Bible than Pfeiffer, the Ninth Symphony than Thayer, the nascent Gothic Abbey Church of St. Denis than either the Abbot Suger who built it or Dr. Panofsky who studied it.

There is little doubt, whether as a matter of faith or of experience, that humanistic scholarship does vastly enlarge the joy of the scholar himself just as we must believe with Robert Oppenheimer that there are reaches of beauty in the land of physics which can never be comprehended by those who cannot enter the land. But desirable as such elevated personal experiences may be, they are personal, as personal as those of the artist whom Professor Jones properly scolds for refusing to learn that he belongs to culture and that he is in some degree responsible to it. To have such joy is the scholar's privilege, but it is not surprising that taxpayers are not eager to pay for it.

The society may better accept the cost when the scholar finds convincing ways to share his joy with the less scholarly. The great classic texts would not be available to ordinary citizens without the intervention of scholars, nor would teachers of mediaeval art and architecture be so well armed without the influence of men like Panofsky. Comparable cases could be made in archaeology and all along the line. This sharing is quite practical. The humanists need to explain it in far more concrete examples than they have yet been willing to offer and the examples are surely there. Nobody could do this better than Professor Jones, but the case is not made here.

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[1] Published by Harcourt, Brace & Co., 1959.

The author has a fine mind, a high set of standards, and a good deal of courage. On the counts recited at the beginning, his book is admirable. But in the end its greatest value may turn out to have been unintentional. For it reveals all too sadly the enormous gap there still is in the understandings between intellectuals of various dispositions. I am convinced that many scientists try—and with some success—to find out what is happening in the arts, pure and corrupt, scholarly and creative, and come as often to wrestle with the great problems of the human condition as many of the humanists do. Is it not time the humanists made at least a comparable try to understand science? Then they might learn how science and technology are part of a seamless web and how neither will automatically corrupt a society. I for one would like to see Professor Jones make the try. The subsequent book might yield us a new "Confessions" to stand with the others which have served the world so well.

Surely the position of Sir Richard Livingstone is the sound one: "It is clear that science cannot do all that we had hoped from it, and the reason is equally clear. It can only operate through human beings, and they are as likely to use for evil as for good the powers which it gives." The Congressmen who see no evil in nepotism, the political leaders who see no harm in venal friends, the purveyors of the bland life over the television commercials—none of these are the products of scientific education. What lessons the humanities may have had for them have evidently not been learned. I know of no evidence that men who specialize in the humanities will be more likely to use science for good than men who specialize in the sciences—and I would think it certain that they will not if they continue to build uninformed images about a science that is not now, if indeed it ever was.

JOHN E. BURCHARD, *M. I. T.*

Existentialism and Education, George F. Kneller. Philosophical Library, New York. 1958. 170 pp. $3.75.

Professor Kneller wishes to present the relation of existentialism to education. Existentialists themselves have not done so to any great extent, but Kneller believes that their insights can shed considerable light upon the educational controversies of today. "The crisis of modern public education is one of finding ways in which the demands of social conformity may be reconciled with the intrinsic natural diversity in human beings" (p. 32). Kneller promises that the existentialists would not "prevent the individual from joining the group. The *opportunity* should always be afforded. But acceptance of the opportunity should never result from social pressure; rather, it should spring from one's own uninhibited will. By extension, one should always be afforded the opportunity to be different, even to be eccentric, not for the sake of eccentricity but because all human beings are intrinsically different" (p. 36). It is true that educational experimentalism—which I take to mean progressivism—does not neglect individualism either.

But "experimentalism tends to produce educational programs which focus on inquiry, consensus, process, rather than upon authentic freedom. Of course, a child may be authentically free and at the same time agree with the group of which he is a member; but experimentalist education fails to sensitize him to this sort of freedom" (p. 36).

All this makes one wonder what Kneller's conception of existentialism is. The answer is given in chapter V, whose 100 pages form the bulk of the book. In it, Kneller summarizes the existentialisms of Heidegger, Jaspers, Sartre, Marcel and their precursors Kierkegaard and Nietzsche, and in addition, he formulates what he believes to be the existentialist implications for education.

First, then, with respect to Kneller's summaries, the best thing one can say about them is that many of the quotes taken from *other* writers on existentialism are helpful. The neatest observation of the whole book is to be found in a quote taken from Levinas: ". . . existentialism consists in feeling and thinking that the verb 'to be' is transitive" (p. 21). In fact, without these quotes there would hardly be any raisin in the pie. Compare, for example, Blackham's explanation of "existence precedes essence" with that given by Kneller: "We cannot search for essence until we have explained the existence of the thing whose essence we are seeking" (p. 66). Heidegger is badly handled. "The German philosopher distinguishes between *being* and *Being*. The former represents a thing or person. The latter includes the former and refers to those aspects of relation, movement, and efficacy which have traditionally been considered as part of the existent. Since all existence partakes of Being, Being is ontologically prior to existence" (p. 44). Similar mishandling occurs on pages 64, 95, and 109.

And what are the implications of existentialism for education? From Heidegger's being-unto-death Kneller draws "education-with-death-in-view" (p. 111). He gives it a moral twist: ". . . history is replete with examples of self-sacrifice to the point of self-annihilation for the benefit of mankind" (p. 109). And he goes on to show how a "resourceful" teacher might inculcate such heroics: "His examples lie in nature where, year by year, the foliage of summer bursts forth in a final riot of autumnal color before encountering the death of winter; or where a mother so often yields to death that her offspring may live. Can he not suggest, also, without condoning murder, that Lincoln *might* have been assassinated at a point of climax in his career when to have lived longer would not have been for the public good?" (p. 112). Closely tied up with this lethal concern of existentialist education, as Kneller sees it, is the emphasis on "methods which appeal to feeling, emotion, creativity, and the deeper meaning of life" (p. 137). That is to say, "knowledge should be appropriated through the exercise of concern and dread; not through objectivity" (p. 63). This in turn means, I suppose, that "the student must identify his authentic self in and with all his learning experiences" (p. 118).

I am not quite sure *where* all this is to take place. For "the injunction to be expected from most existentialists regarding our public schools would be: Ignore them!" (p. 43). "Existentialists would all agree that those who are educated deserve a better destiny than becoming lost in the anonymity of modern public schooling" (p. 91). Where then is education-with-death-in-view to take place? It appears that the family is the true existentialist matrix of education. We are told that existentialists consider the transfer of educational responsibility from home to school as most unfortunate (p. 101). And I have no doubt that at least those fathers who come home dead drunk and beat up wife and kids do furnish their offspring with education-with-death-in-view, with dread and solitude and authenticity.

For better or worse, in this country existentialism appeals mainly to philosophers of mediocre brains and educators of lukewarm hearts. Good brains go analytic and kind hearts idealist. Mr. Kneller betrays in many features that he is very much of the stuff the members of our progressivist departments of education are made of. But being-unto-death has upset him to the point where he prefers company that is obviously uncongenial to him. He will, it is hoped, return to the fold. And in fact, in the last chapter of his book, Kneller gives a critique—so touchingly pedestrian—of existentialism, in which he enumerates first four weaknesses of existentialism and then four contributions. He seems on his way back to balance.

WALTER CERF, *Brooklyn College*

Ethics, Charles A. Baylis. Henry Holt and Co., New York. 1958. 373 pp. $4.00.

Books on ethics by philosophers are relevant to the concerns of educators and teachers in at least two different ways. They may and should be consulted as guides in the process of moral education. For, if educators are to be clear about what they are trying to do in moral education, and how to do it, they must understand the nature and function of morality, and this is what moral philosophers seek to elucidate. I have tried to illustrate this point in a recent article in this journal. In the later stages of moral education, of course, students may themselves be asked to study books on ethics, so that they may hold their moral principles more intelligently and be better able in their turn to take part in teaching morality to the next generation.

Educators may well consult books on ethics, however, not only in connection with moral education but in connection with thinking about education in general. For any answers to questions about the goals and even the methods of education must depend in part on moral considerations, and it is the nature of these considerations that moral philosophers are endeavoring to clarify in their writings. An ethical theory is therefore presupposed by a philosophy of education, and a study of ethics should be part of the training of anyone who is to philosophize responsibly about education.

The present book is designed as a textbook for introductory college courses in ethics. That is, it is intended for students who are in the later stages of their moral education but have not had much philosophy, if any. It is not meant for educators themselves, who will and should prefer to read more advanced works. But it might well be studied by teachers who have not had a course in ethics but feel the need for a systematic guide for their ethical thinking and instruction; and even a more sophisticated philosopher of education could review the position presented with profit.

As an introduction to ethics this book has considerable merit. It is written by a very able and competently-trained philosopher, it is well-organized, and it is clearly and sensibly argued throughout. The author takes a definite position of his own, but he does so undogmatically, always presenting alternative views and giving his reasons for rejecting them; he offers his position, not as certainly true, but as the most probable one, and challenges the reader to find good grounds for disagreeing with it. At the end of each chapter he gives discussion as well as review questions, and references for further reading.

After an introductory chapter, there is one on the free will and determinism problem. Then come several chapters reviewing various types of ethical theory: formalistic ones, teleological ones, and mixed ones. These theories are all normative (i.e., they propound substantive principles of obligation and value), and so the next three chapters (9, 10, 11), which are central to the book, are devoted to the meta-ethical question of the cognitive status or truth of such principles, particularly that of utilitarianism. The refutation offered here of the non-cognitivist views does not seem to me to be wholly successful, but the positive theory presented is interesting and worth attention.

This positive theory may be summarized, all too briefly, as follows. "Right," "good," etc., cannot be defined in empirical or naturalistic terms without losing their usual normative implications. But they can be defined in terms of the normative notion of "preferability" or "worthiness of being preferred," itself taken as undefined, though "familiar" (p. 238). For example, "A ought to do X" means "X is preferable to any other act which A could do in the circumstances," and "X is good" means "Other things being equal, the existence of X is preferable to its non-existence." Statements about what is preferable, however, can be known to be true, though only with probability and not with intuitive certainty. We can find out what is preferable by looking to see what is preferred when the following conditions are met: 1) the preferrer is conscientiously seeking to give his preference only to something worthy of it, 2) he is aware of all the significantly relevant features of various possible alternatives, 3) he makes no significant error of judgment in his consideration of these features. Such an enquiry is an empirical one and may yield probable knowledge of the sort found in any science. Now, when we review what is preferred under such conditions, we find (a) that the actions preferred have the common and peculiar property of being probably productive of the most good, and (b) that the things preferred for their own sakes have the common and peculiar property of being pleasant. Of course, this discovery is subject to correction, but until it is shown to need correction we may take as probably true a utilitarian theory about what is right and a hedonistic theory about what is good.

Two questions about this view may be briefly raised. First, what is the relation between "being preferable" and "being preferred under the three conditions stated?" Why can I take being preferred under those conditions as "ideal evidence" (p. 242) of being preferable? According to Baylis, I cannot do this because "being preferable" means "being preferred under those conditions," nor because it is self-evident that what is preferred then is preferable. The only other possibility along cognitivist lines is that "What is preferred under those conditions is preferable" is a true empirical generalization. But this Baylis does not show, and it is hard to see how he could show it. Second, what reason is there for regarding "preferable" as standing for a property? Why should we take "X is right" and "X is good" as statements in which we ascribe an undefined property of preferability to X under the three conditions indicated, rather than as expressions of the preferences we feel under those conditions?

In his last two chapters, Baylis deals more practically with two questions: what are the principal inherent goods or sources of happiness, and what are the most important political, social, and economic prerequisites for making these goods available to all? Here, among other things, he has two pages on education (pp. 362-364), which is all too unusual in books on ethics.

WILLIAM K. FRANKENA, *The University of Michigan*

New Knowledge in Human Values, Edited by Abraham H. Maslow. Harper & Brothers, New York, 1959. 268 pp. $4.50.

This book contains the addresses delivered by fifteen participants at the First Scientific Conference on New Knowledge in Human Values. The conference was organized by several members of the Research Society for Creative Altruism which owes its existence to the initiative of the founder of the former Department of Sociology at Harvard University, Professor Pitirim Sorokin, whose address is the first in the series.

He emphatically affirms the belief, which has resulted from his many widely known studies on the rise and decline of civilizations, that the only hope for the survival of humanity is a pervasive attitude of love and mutual responsibility. If this idea is beyond complete realization, let it be. It is nevertheless right—just as right as the Sermon on the Mount—and it might be very worthwhile to use modern methods of scholarship for its systematic exploration. Professor Sorokin's address has one disadvantage in that it contains the dubious assertion that the longevity of so many saints, in contrast to the short life duration of so many statesmen, soldiers, and potentates of wealth, is due to their altruism. First of all, too many variables are involved to permit such a statement; secondly, many saints were not altruistic, but highly ego-centered individuals.

Of the essayists as a whole, W. A. Weisskopf's observation is fitting: "They all strive for unity through love but within different dimensions" (p. 222). Otherwise, the addresses run the whole gamut of sociological, biological, psychological, and philosophical interpretations of value systems. Though differing in length and quality, they are nevertheless all on a high intellectual level and worth the time of the reader—even if he sometimes feels that the title could also have been "Reflections on the Confusion in Human Values".

The biologist, Ludwig Von Bertalanffy, attempts to relate values to the biological drives of man, asserting at the same time "that the value system of Christianity has proved to be singularly persistent and adaptable to varying cultural frameworks" (p. 74). Theodosius Dobzhansky, a zoologist, also adheres to the evolutionary theory of values. For him the "methods of adaptation" which man has developed are due to his intelligence being the highest product of evolving nature.

The editor of the volume, psychologist Abraham Maslow, reaffirms his belief that after centuries of failure it will be possible now "to construct a naturalistic psychological value system that could be derived from man's own nature, without necessity of recourse to authority outside the human being himself" (p. 119). He distinguishes between good choosers, who are self-actualizing people, and bad choosers, who are self-destructive. His list of the "objectively describable and measurable characteristics of the healthy human specimen" is so important for the teacher that I enumerate it in the same summary fashion which the author himself chose.

1. Clearer, more efficient perception of reality.
2. More openness to experience.
3. Increased integration, wholeness, and unity of the person.
4. Increased spontaneity, expressiveness; full functioning; aliveness.
5. A real self; a firm identity; autonomy; uniqueness.
6. Increased objectivity, detachment, transcendence of self.
7. Recovery of creativeness.
8. Ability to fuse concreteness and abstractness, primary and secondary process cognition, etc.
9. Democratic character structure.
10. Ability to love, etc. . . (p. 127).

Near to Maslow's thinking is that of the neurologist, Dr. Kurt Goldstein, who discusses "the essential significance of the phenomenon of health for man's self-realization" (p. 179), and also, in a way, that of the psychologist Gordon W. Allport, for whom "tentativeness" and "equimindedness" are the main criteria for individual and social health. Allport, of course, is not only biologically oriented, he is a humanist—as his life work proves—and would not oppose certain transcendant ideas about the nature of values. Consequently, he is much less assured than Maslow of the omnipotence of empirical psychology in our attempts to solve the human problem. He expects help also from anthropology, philosophy, and the great wisdom of religious traditions. Especially interesting for the teacher are the factors he sees as negative or antithetical to productive human interrelations. They are: "theories of renunciation and asceticism," "authoritarian morality," "legalistic 'thou shalt' or 'thou shalt not' theories," "utopian theories which counsel perfection," and "utilitarian ethics" (p. 138).

Allport, though using a different vocabulary, would probably agree with the address by Walter A. Weisskopf on "Existence and Values." An impressive article, it is written, curiously enough, by a Professor of Economics who has become convinced that man will become poorer and poorer the more he believes that he can live on bread alone. Like Tillich (see his address, "Is a Science of Human Values Possible?") Weisskopf finds "the essence of ultimate values" in the "ground of being" or "that dimension in which all antinomies are united and harmonized . . . . It is the rational structure of the universe together with its depth dimension, the 'creative ground, the infinite and unconditional power of being,'" (p. 109) from which springs man's freedom to decide and to unite the conflicts and polarities which he encounters in the realization of his existence.

This sounds abstract, but one can immediately perceive the fruitfulness of Weisskopf's existential philosophy in its application to the psychological and, especially, the psychoanalytical aspect of values. Here he comes close to Erich Fromm (see Fromm's address, "Value, Psychology, and Human Existence").

Weisskopf distinguishes between "union downwards" and "union upwards." The first manifests itself "in the many avenues of escape such as ecstatic behavior, sex, intoxication, etc." It negates individuation. On the other hand, "union upwards" is connected with the drive toward "individuation" (pp. 110 ff.)—or, as Maslow and Goldstein would say, with the drive toward self-actualization—as the way by which the individual harmonizes his existential antinomies.

Besides Tillich and Weisskopf, and to a degree also Fromm, two other contributors belong to the "ontological" group, both with a strong emphasis on mystical experience. One of them is Gyorgy Kepes, painter and Professor of Visual Design at MIT, for whom true art represents the union of the human being with the inner rhythm of the universe (he could have referred to St. Augustine's conception of music). The other is the Japanese philosopher, Daisetz Teitaro Suzuki, who explains the "Human Values in Zen." Professor Suzuki's Zen philosophy is related to Taoism or Mahayana Buddhism. He uses profound symbolism to elucidate his doctrine that man can enter into his deepest dimension of power only when he discovers the union between the finite and the infinite in the world as well as within himself. In this process of "intuition," the difference between subject and object disappears and the person, by freeing himself from the fetters and anxieties of his subjectivity, enters into the creative process of God. "What moves human beings is decidedly not science and the rationality of human nature; nor does the scientific treatment of anything and whatever knowledge accruing therefrom help us in any practical way to solve the problems such as we are facing at present. To believe in them is a modern superstition" (p. 104).

Thus we have gone full circle. We started with Sorokin's emphasis on the central role of altruistic love in man's spiritual creativeness and moved to the biological school of thought (Bertalanffy and others), to Allport's "humanistic" interpretation of values, and then to the ontological-religious-mystical form of thought represented by Kepes and Suzuki. How close Sorokin feels to the latter, or as he phrases it in his "Reply" to Professor Weisskopf's summary, to "the suprasensory-suprarational form of reality-values," is evident from the following sentences. "Quite generally this class of reality-values is viewed as the center or the source of the highest creativity known to man. Even more, *it is creativity at its highest, purest, and best*" (p. 227).

One cannot help thinking of the famous classifications by which Professor Sorokin himself has characterized the main periods in cultural development: the "ideational" phase when man feels embraced by a divinely ordered universe; the "idealistic" phase when religious awareness gives way to a more humanist-rational interpretation of the human being; and the "sensate" phase where, from Sorokin's point of view, uprooted humanity fallaciously attempts to find its salvation through world-immanent empiricism. The majority of the articles, I am afraid, reveal the "sensate" attitude and would, thus, lead man away from himself rather than into his depth.

There is, finally, one contribution that is different from all the others. It is Robert S. Hartman's essay, "The Science of Values." I can not judge the mathematical side of it other than to remark that it is most interesting and probably highly expert. But one finds here, as so often, the naiveness with which men who are proud of the scientific exactness of their discipline look at the complexity of human affairs. "The science of nature," says Mr. Hartman, "measures spatiotemporal being; the science of value measures meaning. To be sure, the science of value will change the world as did the science of nature. Its result will be the abundant life that is mankind's promise—provided we do not fail" (p. 13). Thus, after Marx's scientific dialectic materialism we have at last a new great promise—a utopia on the "sensory" level. But, what if we fail, and how can we be taught not to fail?

The problem of conveying a sense of values to the younger generation is apparently of little or no concern to the planners and participants of the conference. Not one contribution discusses the relation between values and education; none is concerned with the influence of politics on the formation of value systems. One gradually becomes accustomed to such omissions. But one cannot help asking certain questions about the interaction between scholarship and social reality.

MARY EWEN ULICH, *Wellesley College*

Desegregation: Resistance and Readiness, Melvin M. Tumin. Princeton University Press, Princeton, New Jersey. 1958. 270 pp. $5.00.

Large scale social science studies of the South's racial desegregation process unfortunately have not as yet been conducted. The techniques and research ideas for such studies are abundantly available, but cautious foundations have not provided the financial support that is required. Consequently all that has been done so far are low budget, "spot investigations," testing a restricted number of problems in one or two specific communities. Despite its title and the provocative questions asked on the jacket (e.g., "What groups of people in the South are ready to accept desegregation?"), Professor Tumin's work is simply another "spot investigation." *Desegregation Attitudes Among Guilford County White Males* would have been a far less dramatic but far more accurate title.

In the fall of 1956, a group of graduate students from Princeton's Woodrow Wilson School of Public and International Affairs interviewed a random sample of 287 white adult males in Guilford County, North Carolina (which encompasses the cities of Greensboro and High Point). The interview schedule included questions in five related realms: image of the Negro (i.e., How do you think the Negro differs from the white?), ideology concerning desegregation (i.e., What are your ideal preferences about social relations with Negroes?), sentiments concerning desegregation (i.e., How do you feel about being in integrated situations yourself?), action set toward desegregation in general (i.e., What would you do about desegregation in many areas of life?), and action set toward desegregation of schools specifically (i.e., What would you do about desegregation of public schools?). Data were also gathered on 11 characteristics of the respondents (e.g., education, age and occupation). The results from this modest training exercise have since proliferated into no fewer than six journal articles in addition to this book!

Though subject to serious qualifications, the findings are interesting. A majority of the all-male sample revealed pro-segregation attitudes on each of the five dimensions, but this result must be viewed in relation to three other findings. First, 23 selected leaders in the community were considerably more in favor of desegregation than the general sample. Second, the percentage of the interviewees who answered in a pro-segregation manner decreases steadily as one proceeds from the image scale through the ideological and sentiment scales to the action scales. These differences between the scales are greatest for the more educated sample members. Third, Tumin's respondents also varied considerably in the specific actions they would be willing to support in order to prevent school integration. Thus seven out of nine of them would agree to a Constitutional amendment, five out of nine would agree to withholding state funds from integrated schools, four out of nine would agree to closing the integrated schools, but only one in four would agree to the use of force if necessary.

Four of the 11 variables reported were closely associated with these desegregation attitudes—formal education (grammar school, high school, or college), exposure to the mass media (radio and television news, daily newspapers, and national weekly magazines), occupational status (blue versus white collar employment), and yearly income. As might be expected, the college educated, informed, white collar employed, high income respondents tended to be the most ready to accept racial integration. The first three of these factors are given particular attention by the author. Two other variables yielded modest relationships with desegregation readiness. First, urban residents appeared slightly more favorable in their racial attitudes than rural residents, and second, those respondents who had either more than three or no children tended to oppose school desegregation in action terms more than others. Church attendance and social mobility did not yield significant relationships but are analyzed in detail anyway. Three additional factors—age, denominational affiliation, and exposure to industrialism—did not significantly relate to desegregation attitudes.

These results are subject to four types of serious limitations. Tumin recognizes and discusses some of these limitations but does not consider them in many interpretations of the data or in the title of the volume.

The first restriction concerns the location of the study. By southern standards, Guilford County is unusually urban, remarkably prosperous, and thinly settled with Negroes (19.5%)—all three conditions noted by previous investigators to be associated with favorable attitudes toward desegregation. The area's moderate racial views, supported by a unique Quaker tradition, have historically set it apart from those "Black Belt" counties where the integration problem is most intense. Indeed, one year after this survey was made the county's leading city, Greensboro, revealed its atypical character by becoming—without serious incident—one of the middle South's first communities to desegregate its public schools. Thus one may question Tumin's assertion that: "There is always the chance that what we have found out about the dynamics in Guilford County is highly particular to that county. It is a slim chance, but it is a chance. The greater likelihood is that the dynamic processes apply fairly widely throughout the South and perhaps throughout the nation" (p. 25).

Another problem arises from the biased nature of the sample drawn from this atypical area. The absence of females is unfortunate both because they are politically important as voters and as leaders of parent-teacher groups and because many previous studies (not cited by Tumin) have shown them generally to be more pro-segregation than males. But even with the all-male sample serious biases are introduced. As pointed out though not discussed in the appendices (pp. 214-218), the sample males earned a median yearly income ($4,278) almost double the county median ($2,398), were less often poorly educated (3.1% with less than 5 years of education) than the county's males (15.9% with less than 5 years of education), and were more often holding white collar occupations (69.2%) than the county's males (58.1%). Most polls have biases toward the higher prestige elements of the population, but these differences seem to be unusually large.

Another limitation concerns the interviewers. We are told that most of them were northerners and none of them had previous field experience, though they "were reasonably well trained in interviewing by the time they got into the field" (p. 7). Moreover, they informed all respondents of their northern affiliation—Princeton University. Tumin cites a variety of reasons why he feels that these inexperienced interviewers "with the wrong accents and the wrong credentials" (p. 6) introduced no biases into the data (pp. 6-9). But his reasons argue only that the study was still possible to conduct in spite of these handicaps and do not effectively counter the probability of serious interviewer bias. Tumin concludes: "After all is said and done, and in spite of all the checks and rechecks which one makes, one ends up having to leave the final judgment to the reader" (p. 9). With both the vast literature on the subtleties of interviewer bias and personal interviewing experience in the South in mind, this southern-accented reviewer cannot agree with the author's judgment. Since it has been shown that even the clothing of an interviewer affects many responses, is it not reasonable to assume that "wrong accents and wrong credentials" do too?

A final difficulty involves certain procedures of analysis used in the study. The first of these concerns the consistent classification of all "don't know" and unclear responses in the pro-segregation category. This arbitrary procedure is explained only as balancing other procedures that introduced a pro-integration "strain" (p. 227). Other questions are raised by the scaling techniques. Unidimensional, Guttman scales are claimed for each of the five series of queries. High reproducibility percentages are quoted in support of this claim, but short four and six dichotomous item scales such as these yield relatively high reproducibilities by chance alone. Thus information about other criteria is necessary, particularly the percentage of cases falling into the largest non-scale type. Given the similar item marginals on four of the scales (pp. 34, 37, 40, and 43), it seems highly unlikely if any but the specific action scale meets these necessary and more rigorous criteria of a true scale. This possibility is more than a technical qualification; it challenges the whole assumption of the author that he is dealing with five simple, uncontaminated attitude dimensions.

The most serious analysis problem concerns the control of relevant variables. Working with just 287 cases, Tumin controls only one variable at a time in his analyses. But even this restricted amount of control begins to complicate the clear trends described in the text. Thus, when education is controlled, two out of six comparisons show the high exposure to mass media groups to be *more* anti-Negro than low exposure groups. Similarly, when occupational status is held constant, one of the four comparisons shows this same reversal to the general trend. This and other examples suggest that the simultaneous control of two standard variables (such as education and occupational status) would eliminate the relationship of some of the factors (such as mass media exposure) to desegregation attitudes (as they have in other studies). In other words, the effects of the mass media reported in this investigation may only represent the fact that highly educated, white collar respondents are both more pro-integration and more exposed to the media. Though the small sample is limiting in this regard, matched pair designs would have made possible two-factor, even some three-factor, controlled analyses.

These four types of limitations may explain the unusual results of the study. Education, occupational status, and income are found frequently to be correlates of attitudes toward desegregation, but mass media exposure as an independent correlate is new. Also out of line with previous findings is the failure to find age, social mobility, and church attendance significant. It is unfortunate that there is no comparison made in the book between these new and previous findings.

A word needs to be said about the inefficient presentation of the study. Three chapters (IV, VI, and VIII) only repeat findings already given in chapter III and are thus totally unnecessary. Moreover, no fewer than 34 tables, nine in the text and 25 in the appendices, are presented twice! Such excessive and unwarranted repetition strongly suggests that a concise monograph rather than a protracted book would have been the proper format.

To sum up, the reader may find this volume interesting, but he must interpret the study's findings very cautiously. Such serious limitations as the atypical aspects of Guilford County, the sample and interviewer biases of the study, and some questionable procedures of analysis must be kept in mind in any attempt to generalize the results. The many social scientists like Professor Tumin who are anxious to study this massive social change process in detail must await an opportunity with richer resources than were available to this project in order to do a really thorough job.

THOMAS F. PETTIGREW, *Harvard University*

The Negro Personality, Bertram P. Karon. Springer Publishing Co., New York. 1958. 184 pp. $4.50.

The primary purpose of this book was to study the influence of prejudice—Dr. Karon's term is "caste sanctions"—on the personality of the American Negro. In spite of this, the book is about cultural influences and may or may not be about the Negro personality. One cannot be sure whether it tells him about the effect of prejudice on Negroes or even much about Negro versus non-Negro personality, since Dr. Karon has limited his study to a comparison of two cultural areas in the United States—the North and the South. Although its main title seems misleading, the book does present some interesting research findings of differences between these two areas.

The first two chapters present the author's own attitudes toward prejudice, focusing on prejudice directed toward the Negro. In discussing the "sanctions" which discriminate against the Negro, the differences between legal sanctions, such as Jim Crow and anti-miscegenation laws, and social sanctions, such as exclusion from organizations, are shown to be associated with the South and North in quite different degrees. The conclusion of the discussion is that the Negro in the North should be negatively affected by prejudice but less so than the Negro in the South where the sanctions are both more intensive and extensive. This conclusion and other comments about how prejudice adversely affects the Negro personality seem reasonable but are still just opinions at this point in the book. The style of presentation, however, would lead a reader to accept them as having empirical validation, since the author indicates he will later show them to be supported by "carefully controlled scientific research." Unfortunately, this support is not produced. Nonetheless, there are some interesting findings from previous studies reported, as well as two clearly and more soberly written summaries of "the developing situation in the North and South."

The purpose of the research (the study of the effects of caste sanctions on personality) is then discussed in the context of previous studies on Negro personality. It would seem that the author was well aware of the difficult problem of designing research which would indicate the effect of prejudice rather than innate racial differences or other important variables such as socio-economic status. It is, therefore, surprising to find that he argues against comparing the very groups necessary to test his hypothesis.

In order to determine the effect of caste sanctions on the Negro it is necessary to compare Negroes and non-Negroes in the same region, i.e., holding other variables associated with the cultural area constant. But the author says that southern whites are not used because they would probably be influenced in the same way as the Negroes by the caste sanctions (p. 86). When the two comparable northern high school groups are studied, it is seen that there are practically no differences with the exception of the Negroes being more prone to deny symbolic aggression (p. 163). If this were also true of southern whites and Negroes, then it would be rather clear that the findings could not be ascribed entirely to the harmful effects of prejudice on Negroes. In mentioning studies on intelligence, he notes the clear conclusion that northern Negroes do better on IQ tests than southern Negroes which he attributes entirely to the greater degree of prejudice in the South. It would seem more reasonable to consider the possibility that there is also an important difference in educational opportunities between the North and South for *both* Negroes and whites since the data also indicate that northern Negroes do as well as southern whites—a finding which the author does not bother to report. This tendency to attribute any differences between northern and southern groups to caste sanctions is a real weakness in this book.

The instrument used for this study was the Picture Arrangement Test—a projective test derived somewhat from the Thematic Apperception Test (TAT) and developed and standardized by Tomkins and Miner.[1] It consists of 25 plates each of which has three pictures. The subject is to arrange the pictures into a particular order to tell a story. The different arrangements have been grouped into scales as derived from the psychoanalytic theory of Tomkins and Miner.

The first comparison groups used were taken from the records of the Gallup sample by which the test was standardized. A northern white sample was compared with a southern Negro sample. The scales which showed significant differences when tested statistically were used to compare two more Gallup samples. These next samples were a northern Negro group and a southern Negro group. The scales which still produced significant differences were then employed to compare additional groups. A northern city white high-school group was compared with a southern rural Negro group, and a northern metropolitan Negro with a southern city Negro group. All these comparisons showed significant differences when age, education, and vocabulary IQ were controlled. If the interpretations of the scales are acceptable, the southern samples differ from the northern samples in showing more denial of aggression, less availability and greater variability of affect (i.e., emotional energy), less internalized work motivation, and more avoidance of male-male contacts. These findings seem to be a real contribution to the study of the influence of culture on personality, especially since the differences are in a consistent direction when comparing the northern and southern groups.

Perhaps due to his excitement over such impressive results, the author concludes that his hypothesis about the harmful effects of prejudice has been confirmed. Actually, the hypothesis is neither confirmed nor rejected by the findings.

A continuation of this work might contribute substantially to the understanding of personality determinants. Of special value would be the validation of the interpretations of the measures which differentiate these cultural groups. To answer the question of the influence of "caste sanctions" on the Negro personality as measured in this study, it is first necessary to know how much variance of the differences between the samples is due to North-South cultures and how much to Negro-non-Negro cultures. Even then, any differences which may remain will not "prove" the adverse effect of "caste sanctions" but only support this hypothesis until other variables are tested.

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[1] S. S. Tomkins and J. B. Miner, *The Picture Arrangement Test* (New York: Springer Publishing Co., 1957).

ROGER V. BURTON, *Harvard University*

Sociology and the Field of Education, Orville J. Brim, Jr. Russell Sage Foundation, New York. 1958. 93 pp. 01.00.

The field of education has attracted increasing attention from sociologists during the present decade. A progress report is therefore welcome and appears here as the third of a series of studies published by the Russell Sage Foundation in pursuit of its aim to make the results of scientific enquiry available to those who are concerned with the practical problems of society. The Foundation and the members of the American Sociological Society, for whom the book has been prepared, have good reason to congratulate themselves on their author, for Mr. Brim has surveyed the field with an eye to both sociological theory and educational practice and has presented his findings with admirable brevity and tidiness.[1]

Mr. Brim has stated his major aim to be an attempt to "review basic research studies of the institution of education which have employed the concepts and theories of sociology" (p. 7). He also has some wise things to say about the organization of research workers in the sociology of education, but he must presumably be judged primarily in terms of the success of his major undertaking. It is a large one made more manageable by three explicitly imposed limitations. First, two important topics are excluded from the survey: namely, graduate education and the informal agencies of education which lie outside the formal educational system. Second, most of the literature written before 1950 has been judged to be either adequately incorporated in more recent work or irrelevant. Third, the bibliography is not intended to be exhaustive.

Instead the author has drawn up a list of publications chosen according to his own judgment of their merit and the criteria of coverage, recency, and accessibility (in that order). One economical result is that the bibliography itself provides an easy avenue of access to a much wider field of less meritorious, less recent, or less accessible works. It must be added, however, that some of the inclusions do not, because of the uneven development of research, meet Mr. Brim's requirement of using the concepts and theories of sociology; for example, books on educational curriculum and method (F-7, F-26) and much of the literature on allocation of materials and personnel (e.g. C-3, D-20) constitute material for the sociologist rather than analysis as such.

Brevity and orderliness have also been served by confining the survey to American sources and by the author's choice of a framework for the discussion. Mr. Brim employs a simple system of categories based on Malinowski and the functionalist approach to the analysis of institutions in primitive society. The report then divides conveniently into a discussion of five topics: the aims of education, the allocation of materials, the allocation of personnel, the allocation of roles and functions.

On this basis a clear picture is revealed of success and failure, of attention and neglect in recent research. In general, the author finds, there has been more description than analysis and more case study than comparison. The first and last of the five topics are least satisfactorily treated in the literature but on the other hand, among the other three, there has been an impressive and accumulative effort on the part of sociologists. Nowhere is this better illustrated than in the problem of the determinants of educational success and "drop-out" to which distinguished contributions have been made by C. M. Allen, Havighurst, Kahl, Rosen, Sewell, Sibley and many others. The accumulative nature of this work is also exemplified by the way in which Holland's study of college choice among exceptionally able high school graduates (E-9) builds on the researches by Knapp and his colleagues into the origins of American scientists (H-8, H-9).

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[1] J. S. Roucek, *The Development of Educational Sociology: History and Trends in America and Abroad* (University of Bridgeport, 1956), p. 116.

The scheme of analysis is also well suited to a demonstration of the contribution being made by modern functionalism inspired largely by Talcott Parsons and issuing in the work of Neal Gross and his associates on the role of the school superintendent (F-15), for instance.

Were it not for the rapid development of the sociology of education at the present time, there would be little to add to these comments on a work of outstanding economy and clarity. But in view of the probable future importance of the field of sociology, it must be recognised that Mr. Brim's approach raises some issues of principle concerning his coverage of the literature and the adequacy of his framework of discussion to contain the study of educational institutions in a highly differentiated and *changing* society.

Though few will quarrel with Mr. Brim's concentration on recent research, it may well be asked whether a review of basic research studies can afford to consider American sources only. Only one foreign book is listed in the bibliography and its author, Durkheim, along with Herbert Spencer, receives a mention in the report which amounts to no more than a ritual salutation. Even within the period to which the author has devoted the major part of his attention, the work and writings of, for example, Muller or Schelsky in Germany, Girard or Thibault in France and Glass or Floud in England surely deserve notice in a review of this kind. It is as if a European scholar were commissioned to the same task and mentioned only Lester Ward and Dewey among American writers.

Moreover, though Mr. Brim has chosen his one hundred American references with skilful care, some of his omissions may be challenged. Veblen's classic essay on *The Higher Learning* was presumably omitted on the test of recency, but more recent discussion in the same tradition, as in W. H. Whyte's *Organization Man,* or David Riesman's *Constraint and Variety in American Education,* also fails to find a place. Perhaps these omissions stem in part from the author's obvious affinity to functionalism, which, in its modern Parsonian form, places socialisation and values rather than interests or the 'substratum'[2] at the centre of sociological analysis. Thus, in the discussion of the aims of education and the allocation of materials, studies like Raup's *Education and Organised Interests in America* might have been mentioned in order to underline one of the neglected problems in current research.

Again, just as early functionalism turned its back on overambitious comparative and evolutionary sociology, so Mr. Brim pays scant attention to those American writers who look beyond their own shores. Among those studies which come immediately to mind are Edward Shils' essays on the British and Indian intellectuals, C. A. Anderson's studies of the status of university students in different types of economy or of the universities as avenues of social mobility in 18th and 19th century England, Conant's analysis of the American college in a comparative setting and De Witt's study of the Soviet educational system. Unhappily, when Mr. Brim writes of "the comparative study of several educational systems" he is not thinking of (say) Max Weber's typology but turns out to be referring to a work which "compares the effects of student peer group culture upon academic performance in two high schools" (p. 14). More adventurous comparative study would be of great value in assessing the significance of many of the studies mentioned in the report. Why, for example, do the results of McArthur's study of differences in behaviour and personality between private and public schoolboys (E-13) present such marked contrast to the situation in England?

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[2] cf. David Lockwood, "Some Remarks on 'The Social System'," *British Journal of Sociology*, 1956, Vol. VII, No. 2, p. 134.

In short the book falls short of a comprehensive review of research in the sociology of education for reasons of both coverage of authors and a constricted framework of discussion. Nonetheless, within its limits, it offers the only clear and convenient guide which has so far appeared to a fast growing body of scientific work.

A. H. HALSEY, *University of Birmingham, England.*

Verbal Behavior, B. F. Skinner. Appleton-Century-Crofts, New York. 1957. 478 pp. $5.50.

"The basic facts to be analyzed are well known to every educated person and do not need to be substantiated statistically or experimentally at the level of rigor here attempted" (p. 11). "The lack of quantitative rigor is to some extent offset by an insistence that the conditions appealed to in the analysis be, so far as possible, accessible and manipulable" (p. 12). "Although the emphasis is not upon experimental or statistical facts, the book is not theoretical in the usual sense. It makes no appeal to hypothetical explanatory entities. The ultimate aim is the prediction and control of verbal behavior" (p. 12). These three quotations give the rules, so to speak, by which Skinner's treatment of the multitude of different topics that are discussed in the book is to be interpreted and evaluated. These topics are connected only by virtue of the fact that they are associated with at least one of the multitude of uses that man has made of language and language substitutes. This wealth of loosely connected topics makes it impossible to review equitably the full contents of the book in the space allotted. Instead, I shall discuss three basic concepts on which the book is based and in terms of which Skinner implicitly and explicitly defines his basic units of verbal behavior. In the discussion of these three basic concepts—contiguous occurrence, strength, and reinforcement—I shall attempt to show how each is related to Skinner's model of verbal behavior, and that this model stands or falls on their acceptability. I shall then discuss Skinner's definition of verbal behavior, considering the extent and sense in which the structure of these concepts and definitions is similar to the structure of what one would intuitively call verbal behavior.

The notion of "contiguous occurrence" figures implicity throughout the book. The definitions of "mand" and "tact," and the discussion of "intraverbal behavior" serve as typical examples of its use. A mand is "a verbal operant in which the response is reinforced by a characteristic consequence . . ." (p. 35). Skinner's own examples demonstrate that there is an implied relationship of contiguous occurrence between the reinforcement that is manded and a point in time that is designated in the mand either by an adverb of time or, lacking one, by the tense of the verb. "The response *Quiet!* is reinforced through the reduction of an aversive condition, . . ." (p. 35); " . . . when a hungry diner calls *Bread!*, or *More soup!*, he is specifying the ultimate reinforcement" (p. 36). "The mand *Pass the salt!* specifies an action (*pass*) and an ultimate reinforcement (*the salt*)" (p. 36). These mands indicate that the reinforcement is to be given in the present time. In fact, if it is not, each one of them is very likely to be repeated with more strength. In another connection, Skinner cites the case of an aphasic patient who was asked to count. "The patient did not reply *until ten minutes had passed,* when he suddenly began . . ." (p. 24, italics his). Viewing the request to count as a mand, Skinner, himself, as is shown by his italics, considers the lapse of ten minutes unusual.

A tact is "a verbal operant in which a response of given form is evoked (or at least strengthened) by a particular object or event or property of an object or event" (pp. 81-82). That the notion of contiguous occurrence is implied in this definition is shown by Skinner's next sentence. "We account for the strength by showing that in the presence of the object or event a response of that form is characteristically reinforced in a given verbal community" (p. 82). In fact, this notion forces Skinner to explain responses to past and future behavior in terms of stimuli occurring in the present. "*There was an elephant at the zoo* is an answer to the question *Was there an elephant at the zoo?* The answer must be understood as a response to current stimuli, including events within the speaker himself generated by the question, . . ." (p. 143). "Apparent descriptions of future behavior can be explained . . . if we assume that a response such as *I shall go skiing tomorrow* is actually equivalent to the statement *Current conditions, involving the weather, my schedules, and arrangements I have made with my friends, comprise a set of circumstances of the sort under which I characteristically go skiing*" (p. 144)[1]

Similarly, nearly all of Skinner's definitions and many of his discussions concerning types of verbal behavior contain the concept of contiguous occurrence, but in spite of its importance, it is mentioned only once, and, there, only as it applies to intraverbal behavior, i.e., verbal behavior in which the verbal response has no point-to-point correspondence with the verbal stimulus, such as when the response *four* is made to the stimulus *two plus two,* or a passage is quoted from memory, ". . . a verbal stimulus will be an occasion for the reinforcement of a verbal response of different form when, for any reason, the two forms frequently occur together. . . . We may speak of the tendency to occur together as 'contiguous usage' " (p. 75).

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[1] Several questions about tacts come to mind: Are responses which refer to the planets or to stars tacts? The objects evoking such responses cannot, in any sense, be said to be present when the verbal community reinforces the response. Are the responses *evening star, morning star,* and *Venus* a single tact because they refer to the same object, or three tacts because their schedules of reinforcment are different? Suppose John Doe and Mary Jones get married, then John dies and Mary marries George Brown. Then, are the responses *the former Mary Jones, John's widow, George's wife, Mrs. Brown,* and *Mary* a single tact because they refer to the same person, or different tacts because they also refer to different statuses of a person? How are the properties "having an inside" and "having an outside" separately abstracted when the occurrence of one is always accompanied by the occurrence of the other? "A proper noun is a tact in which the response is under the control of a specific thing" (p. 113). However, one is seldom reinforced, and may even be punished, when using a person's name in his presence, yet his name is a tact.

But the notion of contiguous occurrence is not so simply defined as is implied by Skinner's passing mention thereof. The problems of evaluating a distance relative either to other distances or to means of traversing it are obvious. But other problems arise: Objects can be parts of a cyclic process; the distance from 1:00 P.M. to 2 :00 P.M. is not the same as that from 2:00 P.M. to 1:00 P.M. Objects may be parts of an irreversible process; the distance from today to tomorrow is not the same kind of distance and is in no way comparable to the distance from today to yesterday. Objects may be parts of a grammatical process in which distance is a function of constituency membership; in the sentence *Since I am not a communist, John and I are friends, John* and *communist* are much more distant than in the sentence *John is a communist.* Objects may be parts of a grammatical process in which distance depends on the identity of other constituents in the process; in the sentence *John is not a communist, John* and *communist* are much more distant than in the sentence *John has always been a communist.* And, in spite of the lack of a well-defined notion of meaning, the effect of the two sentences *John hates communists* and *John loves communists* on one's verbal behavior is quite different. It is not at all clear just how the prediction and control of verbal behavior can be achieved when it rests on such an elusive concept.

Another important notion in Skinner's model of verbal behavior is that of "strength." Every verbal response "may be conceived of as having under specified circumstances an assignable probability of emission—conveniently called its 'strength' " (p. 22). It is clear from his discussion, however, that Skinner does not mean that "strength" is synonymous with "assignable probability." A degree of strength is assigned to a response only after it has been made and varies with the assignable probability that the response had before it was made. Since these probabilities are not accessible, strength must be measured by various characteristics of the response itself. Strength varies with energy-level, speed with which the parts of the response follow one another, speed with which the response follows after the occasion for it arises, repetitions, and overall frequency. However, by Skinner's own admission these indicators are not foolproof (p. 25). When, for instance, increased energy-level occurs in the form of phonemic accent, or for the purpose of talking to someone at a distance, it is not to be considered an indicator of strength. Similarly, each of these indicators is affected by factors other than strength, but Skinner would infer strength from them only when they occur at a level "above that which would ordinarily prevail *under the same circumstances*" (p. 26, italics his). But supposedly, phonemic accent and raising the voice to cover a distance are features of verbal responses that have been reinforced in a person's behavior and are controlled by various stimuli. Thus it is not clear just which circumstances Skinner means to include in *under the same circumstances* and which he would allow as influencing strength. The notion of strength thus described does not appear to have any relation to the actual probability of occurrence, or to the way in which verbal responses are interpreted by the verbal community. One of Skinner's own examples nicely illustrates this. "If we are shown a prized work of art and exclaim *Beautiful!*, the speed and energy of the response will not be lost on the owner" (pp. 26-27). But it is not clear to me what value there is in saying that this response is very strong when it is expressed in a loud voice, quickly, immediately upon viewing the picture, and repeated several times, but that it is very weak when it is spoken slowly, in a low, awestruck voice, after a silence of a few seconds.

Another of Skinner's basic notions is that of reinforcement. Nowhere in this book does he give a satisfactory explication of it (cf. pp. 52-55) but, presumably, a reinforcer is anything that becomes associated with some other reinforcer through contiguous occurrence[2]. Aside from the problems connected with contiguous occurrence discussed above, there are those connected with associability of reinforcers. This makes it possible to establish a many-many relationship between stimuli and responses; in fact, any response whatsoever to a given stimulus can be reinforced merely by the speaker's knowledge that he has made the "right" response[3] (pp. 53-54). But this, plus the fact that a response need not be reinforced on every occurrence (p. 89), makes it logically impossible to point with any assurance to the reason for any given verbal response, or to predict a response even if we are given all the observable history of the speaker.

This brings us to the subject matter of the book. Verbal behavior is any "behavior reinforced through the mediation of other persons" (p. 14) and to which the listener responds "in ways which have been conditioned *precisely in order to reinforce the behavior of the speaker, . . .*" (p. 225, italics his). This definition, of course, does not confine verbal behavior to human beings, for the behavior of domesticated and laboratory animals can also be reinforced by persons (p. 108). Also, in spite of the word *other* in the definition, Skinner includes a human performer of the behavior among the possible reinforcers of it[4] (p. 10). Such a definition appears to take in nearly all voluntary and some involuntary behavior, but the distinction between verbal behavior and nonverbal behavior does not seem to be correlated with any other property of behavior. It distinguishes between two occurrences of what one would ordinarily consider the same behavior: If I ask someone to bring me the newspaper, I am engaging in verbal behavior, because that person reinforces it by bringing me the paper. If, however, I ask my dog to bring me the paper, my behavior is not verbal because it is reinforced by a dog. Surely, if these two occurrences are actually different, their chief difference does not lie in who reinforces them. This definition also does not distinguish between kinds of behavior that one would ordinarily want to consider different. In this example, both the man and the dog are engaged in verbal behavior, for I reinforce them in some way. If someone washes his face because social acceptance depends partly upon his being clean, and/or because as a child his parents reinforced such behavior, and/or because he feels uncomfortable when his face is not freshly washed, he is engaging in verbal behavior. If he sneezes, someone is bound to reinforce him by saying "*God bless you*" or "*Gesundheit,*" and thus the sneezer is engaged in verbal behavior.

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[2] In *Science and Human Behavior*, Macmillan, N. Y., 1953, pp. 72-84, Skinner discusses various kinds of reinforcers. Some reinforcers are primary, i.e., a species has an innate ability for being reinforced by certain things, such as food, water, babbling, etc. All other reinforcers are secondary. Although primary reinforcers are usually associated with basic drives, Skinner would not equate reinforcement with drive reduction.

[3] Throughout the book Skinner betrays a belief that a good part of organized educational procedure uses approval as the only reinforcement, and attempts to establish the ability for self-approval in the student.

[4] In this review I use this narrow meaning of the word *persons*. Skinner also seems to have a wider meaning, used only in the case of special difficulties, which includes cue balls (p. 46), cars (pp. 46, 47), dice, winter wind (p. 47), cats, flies, chickens, dogs (p. 174), and horses (p. 225). If such reinforcers are generally allowed—and there does not appear to be any reasonable way of confining them to just these or to the special situations in which Skinner uses them—then *X reinforces Y* becomes equivalent to *Y will benefit if X happens*. For instance, plant tropisms are verbal behavior in this sense. Roots go out randomly in all directions. In going toward water they are reinforced by the moister soil. In going in other directions they are not reinforced. They continue to go in the direction in which they are reinforced, and the more they are reinforced, the stronger the response. Such responses can, in fact, become strong enough to break concrete water pipes!

In the presentation of his material Skinner has made much use of a device that consists of three parts: 1) make a statement or definition; 2) show many examples of its application; 3) cite examples that are not covered by the statement or definition but which he wants to include, and/or examples that are covered but which he wants to exclude, and/or state in just so many words that the statement or definition is not to be relied on. His definitions of "strength" and "verbal behavior" discussed above, are examples of this. Another example follows: 1) ". . . stimulus involving emanation or radiation from a point commonly evokes the response *sp*" (p. 121). 2) spit, speak, spew, sputter, sprinkle, spray, spoke, spire, spur. 3) ". . . although the response *spit* shows a similarity with *speak* and *spew* which may be traced to a common stimulus element with respect to the initial *sp,* it shows no common functional relation to other forms ending in *it (hit, sit, bit)*" (p. 122). "Although we may demonstrate a functional unit of verbal behavior in which a response of a given form is controlled by a given stimulus, it does not follow that every instance of a response having that form represents the same operant, nor that every instance of a response evoked by that property has that form. It does not follow, for example, that every instance of *sp* is an instance of the unit just described or that every case of radiation will evoke a response containing *sp*" (p. 122)[5]. One wonders why Skinner bothers to make a definition that he is not going to stick to, and how someone else might use these definitions without depending heavily on his own intuition about what Skinner might have had in mind.

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[5] Some examples that do not fit Skinner's statement are: sport, spend, spoil, shoot, eject, emit.

G. H. MATTHEWS, *M. I. T.*

American Catholic Dilemma: An Inquiry into the Intellectual Life, Thomas F. O'Dea. Sheed and Ward, New York. 1958. 173 pp. $3.00.

Since 1955 there has been a lively discussion going on in American Catholic circles about the sad state of Catholic intellectual endeavors in this country. It has been largely a domestic controversy. As Father Gustave Weigel, S. J. says in his introduction to the present volume, "fortunately, non-Catholics have politely and wisely kept out of the debate." Professor O'Dea's contribution is the first account of this issue which has been offered to the general public.

The discussion up to now has revolved around some unpleasant but inescapable facts. American Catholics fall far short of the kind of representation they should have among the nation's cultural and intellectual elite. Father John J. Cavanaugh, former president of Notre Dame says, "The 35,000,000 Catholics in this country and our Catholic educational system are not producing anywhere near their proportion of leaders." Studies of foundation grants, of literary, artistic, and scientific achievement, of *Who's Who,* of academic rating and scholastic standing, all indicate that despite tremendous educational efforts on the part of the American Catholic community, which supports a system of schools ranging from kindergarten to graduate institutions, the Catholic leader is still a rare bird in the academic, artistic and scientific worlds. Thomas O'Dea, who teaches sociology at Fordham, has attempted to say why. He writes, of course, from the perspective of a sociologist and readily concedes that, whatever the merits of his study, it remains only a partial treatment of the problem.

He begins, wisely, by considering the general problem of the intellectual in American society. As seeker after new truths and critic of the accustomed, the intellectual of whatever stripe is doomed to be the object of popular suspicion. This has probably always been true of intellectuals in all societies. For the defensive-minded Christian, confronted by the opening of new frontiers of knowledge and the piling up of new facts which he has yet to integrate with his faith, the intellectual—even though in his private off-campus life he may belong to the household of the faith, may often appear as the enemy of religion. American Catholicism, to a lamentable extent, has been clouded by this kind of suspicion. Professor O'Dea returns to an older and more authentic Catholic tradition when he recalls St. Thomas Aquinas: "Every truth without exception—and whoever may utter it—is from the Holy Ghost."

The sociological aspect of American Catholicism—lower-class and lower middle-class—is another source of trouble. Until recently, American Catholics were largely immigrants, the children of workers and peasants, who were deprived of the cultural background from which intellectual interests spring naturally. Moreover, under such circumstances the clergy, normally the best educated persons in the community, had an undue influence on the values espoused by the people in their charge. By and large, the priestly interest is pastoral rather than speculative, with the result that Catholicity itself has been ladeled out in pat formulas. The laity, with their priests overly intent on preserving and defending their faith in an alien, often hostile, environment, were not encouraged to take part in the rough-and-ready, give-and-take life of the general academic community. It was widely understood, especially among the Irish, that scholarly work was the special claim of the clergy, who alone were capable of meeting the attacks on the faith; the laity were destined for humbler, less "dangerous" tasks.

Blame cannot be placed exclusively on Catholics themselves, of course. Anti-Catholic prejudice, hostility, and discrimination have long been on the American scene and remain there today. There is still a good deal of truth to Peter Viereck's *mot* that "anti-Catholicism is the anti-semitism of the liberals." Though immense progress has been made in recent years, every American Catholic at one time of another has felt that doors which were open to others were shut against him. This discrimination has brought on an overly defensive, martial and even ghetto mentality among Catholics themselves. The American Catholic community—as is evident even today in the pages of some of the more strident diocesan weeklies—still feels a certain alienation from the general cultural life of America, which still tends to regard dogmatic religion of all kinds, but especially Roman Catholicism, as little more than superstition in the intellectual order and hopelessly reactionary in the social order.

But, however true such observations are, there are elements in American Catholicism itself which up to now have militated against sound intellectual accomplishment. Professor O'Dea attempts to list some of them. He puts his finger first of all on *formalism*—the intellectual formalism whereby abstractions replace experience, syllogistic "demonstrations" replace search, and rationalistic elaboration replaces genuine philosophical insight. Added to this is the mistaken tendency among American Catholics to separate their fulfillment as Christians from their fulfillment as men and to choose the former over the latter. Such a dichotomy cannot be justified by the principles of Catholic theology, but it seems to be a perennial trap for the devout.

The second element isolated by Professor O'Dea is presented under the heading of *authoritarianism*. Authority, of course, plays a key role in the Roman Catholic understanding of Christianity. Professor O'Dea is not referring to the authority exercised by the hierarchy of the Church acting in their proper role. He is speaking of the American Catholic tendency to impose solutions on problems by the simple affirmation of general formal statements that have issued from ecclesiastical authority. Such a tendency has resulted in the crippling of genuine creativity among American Catholics.

To these elements may be added *clericalism*—as O'Dea understands it, the giving to the priest of a monopoly on all the intellectual activities pursued by the Catholic community, and *moralism*, the tendency to see the world as a place bristling with spiritual dangers for the Christian and the tendency to look on life itself as little more than a series of moral temptations. From the mentality produced by these tendencies of the American Catholic mind there arises *defensiveness*, the feeling of having to be forever on guard to repulse attack, whether real or imaginary.

Professor O'Dea is not the first to note these depressing aspects of American Catholicism. In another, more lasting, form they were thoroughly explored a generation ago by James T. Farrell. A significant difference not only between two men but also between two generations is that O'Dea, unlike Farrell, feels no need to revolt. He remains a man of faith who believes that

Catholicism itself supplies the corrective for the defects he has noted. For many reasons, his is a more mature understanding of his religion than Farrell's was—and certainly American Catholicism itself, which today is casting up its own shrewdist critics, has matured vastly since *Studs Lonigan* first appeared. Paradoxically enough, the very publication of *American Catholic Dilemma,* written by a professor in a major Catholic university and published by the most distinguished Catholic publishing house in the United States, suggests that the dilemma is being solved in favor of intelligence, maturity, and a far deeper understanding of the real genius of Catholicism.

JOHN COGLEY, *The Fund for the Republic*

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A SPECIAL ISSUE

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The *Harvard Educational Review* is a professional quarterly for the publication of articles dealing with problems of education. These problems are not merely the problems of schools; they are also the problems of society which bring schools, and other socializing institutions, into existence. The *Review* therefore welcomes contributions, not only by scholars and research workers in Education, but by persons in related professions as well. Fabvorable consideration will likewise be given to articles dealing with problems of education as seen for the vantage point of the several social sciences.

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THE EDITORS

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President and Fellows of Harvard College

Introduction

THE PROBLEMS OF EDUCATION are not merely the problems of schools; they are also the problems of society which bring schools, and other socializing institutions, into existence. Increasingly, American educators are looking toward the insights of the sociologists as a major source for providing new light on old problems. Simultaneously, sociologists are becoming aware that educational institutions are an important area for examining major problems of their discipline. This Special Issue reflects the growing liaison between these two fields. In this issue, a group of leading sociologists look at education as a social institution, and at the units of that institution, the schools, from a variety of sociological perspectives. In so doing, they clarify basic sociological questions as well as fundamental issues in education.

NEAL GROSS delineates some specific contributions of sociology to educational practitioners from three limited perspectives—the school system as a formal organization, the classroom as a social system, and the external environment of the schools. Professor Gross illustrates how sociological research can be "applied" to problems in the ongoing school situation, and comments on the sociologist's role vis-à-vis the practicing educator.

JEAN FLOUD and A. H. HALSEY discuss the relation of education to social structure in societies at different stages of development, and some of the basic considerations involved in studying education as a social institution in industrialized societies. Mrs. Floud and Professor Halsey place the problems of education systems in a broad perspective, enabling the educator to distinguish those problems which are specific to our society and those which confront all industrial societies.

TALCOTT PARSONS analyzes the elementary and the secondary school classes as social systems and the relation of their structure to socializing and allocating individuals to adult roles in American society. Professor Parsons demonstrates the sociological consequences of the processes and activities in the classroom, and shows how the school tends to become the basic channel of selection as well as the principal agency of socialization.

EVERETT C. HUGHES presents one model of the teaching situation in which student and teacher are closely identified with each other, and examines the extent to which this model exists among medical students. Professor Hughes raises important questions about the basic social relationship in educational situations—the teacher-student relationship.

JAMES S. COLEMAN demonstrates how the norms and values of the adolescent culture affect achievement in the school. He shows how the structure of competition in high schools undermines a student's scholastic efforts and encourages his efforts in other, more tangential directions. Professor Coleman suggests how the current structure of competition can be changed and the "academic output" of the school increased.

DAN C. LORTIE examines the complex interrelations between the worlds of education and work, and the basic social processes of socialization and allocation as they are revealed in the profession of law. His analysis suggests the importance of understanding the increasingly close relationship between a man's education and his occupation in our society.

WARD S. MASON, ROBERT J. DRESSEL, and ROBERT K. BAIN examine the impact of sex role on the career orientations of beginning teachers, together with the influence of sex role on the relationship between occupational values and career orientation. Their findings have important implications for the problem of the professionalization of public school teaching.

THE EDITORS

Some Contributions of Sociology to the Field of Education

To open this Special Issue on Sociology and Education, the Editors of the Harvard Educational Review *asked Dr. Neal Gross, a sociologist well-known for his interest and research in the Sociology of Education, to present some specific implications of sociological analysis for educational practitioners.*

NEAL GROSS
Harvard University

THE PURPOSE of this paper is to delineate *for the educational practitioner* some specific contributions of sociological analysis to the field of education. We propose to focus on a limited set of substantive sociological contributions that teachers, supervisory personnel, school principals, or school superintendents may find of value in dealing with their work environment in a more realistic and effective manner.

Of the many approaches possible in describing some "practical contributions" of sociology to the field of education, the following procedure has been adopted. Specific contributions will be discussed under three headings that constitute sociological perspectives in the examination of school systems as functioning social systems. The first is that educational relationships occur in the context of a formal organizational setting. Students, teachers, supervisors, principals, and school superintendents interact as incumbents of positions in a social system which has an organizational goal, the education of children. To accomplish this task the work that goes on in a school must be assigned, coordinated, and integrated. Educational practice involves a number of people in a complicated division of labor; this necessitates networks of role relationships within an organizational environment. The second perspective derives from the fact that the basic work of the school, the educational transaction, takes place primarily in a relatively small social system, the classroom. The third perspective emerges from an observation that the sociologist would make about the school as a social system: Like all organizations, it is influenced by forces external to it. The impact of these external factors on the functioning of the school therefore comes under his scrutiny as a focal point of inquiry. It is from these three limited perspectives[1]—the school system as a formal organization, the classroom as a social system, and the external environment of the schools—that we propose to delineate some contributions of sociology to practitioners in the field of education.

THE SCHOOL SYSTEM AS A FORMAL ORGANIZATION

A school system from a sociological point of view shares many common characteristics with other kinds of large-scale organizations. Two of these are of special relevance for our purpose. The first is that a school system, like business firms and hospitals, has an organizational objective. It is a goal-directed social system. Second, it contains a network of interrelated positions (for example, teachers, supervisors, and administrators) that are directly linked to the accomplishment of the organizational goal.

According to the "organizational model" for public schools, the business of the school is to impart knowledge and skills to students and therefore teachers are employed for this purpose. The function of supervisors is to help teachers to do a more effective job, and the formal duties of school administrators are to coordinate and integrate the diverse activities of the school. The incumbents of these positions have certain rights and obligations in their relationships with incumbents of other positions with whom they interact. Implicit in discussions of these aspects of the organizational structure of the school are two assumptions that deserve empirical examination. The first is that there is basic agreement on the organizational objective of the schools. The second is that there is agreement on the rights and obligations associated with the various positions in education. Sociological analysis suggests that both assumptions may in fact be tenuous in many school systems, and that lack of agreement on educational objectives and role definition may constitute major dysfunctional elements in the functioning of the school and may affect the gratification educators derive from their jobs.

The formal organizational goal of public school systems is vague and is characterized by ambiguity. This observation emerges from a comparison of school systems with other types of organizations, for example, a business firm. The formal organizational goal of a business firm is unambiguous: to produce products or services for a profit. Labor unions may fight with management over the distribution of profits but typically there is no quarrel over the organizational goal itself. The situation is quite different, however, when an effort is made to specify the organizational objective of a school system. "To educate children" is a largely meaningless statement unless the purposes of the education are specified. And here lies the difficulty.

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[1] For other perspectives and an examination of needed research in the sociology of education see Orville G. Brim, Jr., *Sociology and the Field of Education* (New York: Russell Sage Foundation, 1958), and Neal Gross, "The Sociology of Education," in Robert K. Merton, Leonard Broom, and Leonard S. Cottrell, Jr. (eds.), *Sociology Today* (New York: Basic Books, 1959).

The specification of educational purposes invokes value issues such as the respective responsibilities of the home and the school or the meaning of a "good education." Whether the schools should give greater primacy to the intellectual, social, or emotional development of the child; whether or not they have the responsibility to impart moral values; whether the schools have different obligations to the "typical" and "atypical" child; whether they should encourage or discourage the questioning of the status quo; whether driver education, physical education, and courses in home economics and family living are legitimate or illegitimate functions of the school—each of these is a value question on which there may be contradictory points of view within and outside of school systems. An unpublished Harvard study involving personnel at different levels in eight New England school systems revealed dramatic differences in the beliefs teachers hold about educational goals and revealed that principals and teachers frequently do not share common views about educational objectives. Striking disagreements between superintendents and school boards have also been uncovered in regard to certain educational objectives.[2] Research evidence[3] further indicates that one of the major sources of pressures to which school administrators are exposed consists in conflicting viewpoints in their communities about school objectives and programs. Educational practitioners need to recognize that a fundamental source of controversy within the schools may be related to basic and unrecognized value conflicts over its organizational objectives. These differences in beliefs are infrequently brought to the surface for frank and open discussion. They may constitute basic blocks to effective group action and harmonious social relationships.

The second "organizational assumption," that there is agreement on the role definition for educational positions, also appears to be suspect. Although textbooks in education glibly speak about the role of the teacher and of the school administrator as if everybody agreed on what they are, and many educational practitioners make this assumption, the organizational fact in many school systems may be that those people who work together frequently do not share similar views about the rights and obligations associated with their positions.

Should teachers be expected to attend PTA meetings regularly? Does the teacher's job include the counseling function? What are the teacher's obligations to the especially bright or especially dull child? Or the problem child? What are the teacher's obligations in handling discipline problems? Should teachers be expected to participate in in-service training programs? Does the teacher have the right to expect that the administrator will always support him when parents complain about his behavior? On these and many other phases of a teacher's job there may be considerable disagreement between principals and teachers as well as among teachers.

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[2] Neal Gross, *Who Runs Our Schools?* (New York: John Wiley & Sons, Inc., 1958), pp. 113-25.

[3] *Ibid.*, pp. 45-60.

The findings of a study concerned with the role definition of approximately 50 per cent of the superintendents and school board members in Massachusetts revealed a basic lack of agreement over the division of labor between them.[4] On the issue of hiring new teachers, seven out of ten superintendents interviewed reported that the arrangement they desired was this: when a new teacher was to be hired, the school board should act *solely* on the nominations of the superintendent. But only one out of five of the school board members agreed with them. How about the selection of textbooks? Nearly nine out of ten superintendents felt that the school board should always accept the recommendation of the superintendent in choosing a textbook. But less than one-half of the school board members agreed. What about teacher grievances? Nearly 90 per cent of the superintendents believed that teachers should always bring their grievances to the superintendent before they went to the school board. Only 56 per cent of the school board members agreed. What should the procedure be when a community group wishes to use school property? Nine out of ten school superintendents thought that this decision should be the superintendent's responsibility. Nearly one-half of the school board members, however, felt that these decisions should be made by the school board. What about recommendations for salary increases for school system employees? Over two-thirds of the superintendents felt that the superintendent should make all such recommendations. Only one-third of the school board members agreed with them. These findings imply that in many school systems disagreements over the rights and obligations associated with educational positions may constitute basic sources of stress in the school system. They also suggest that intra-role conflicts appear to be "built into" many educational positions.

By an intra-role conflict we mean conflicting expectations to which an individual is exposed as a consequence of his occupancy of a *single* position. Teachers are frequently exposed to conflicting expectations from their principal and supervisors, from guidance personnel and their principal, from parents and administrators, and even from students in their classrooms. School principals are exposed to conflicting expectations from their superintendent and their staff over such matters as the supervision of classroom instruction and the handling of discipline problems. School administrators are confronted with conflicting expectations among their school staff. For example, some teachers expect their principal to make all important decisions affecting their welfare, but other teachers expect to participate in such decisions.[5] In addition, parents and teachers frequently hold contradictory expectations for the principal's behavior in regard to student promotion and discipline practices. It is the school superintendent, however, who probably is exposed most frequently to intra-role conflict. A major source of these conflicting expectations arises from the differential views held by his school board and his staff for his behavior. Whose views should he support when the school board and the staff hold conflicting expectations for his behavior on such issues as the size of the school budget or promotion policies? Superintendents, like school principals, must also frequently deal with differential expectations among the teaching staff. And their most difficult problems may emerge from conflicting expectations held by their school board members for their performance.

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[4] Neal Gross, Ward S. Mason, and Alexander W. McEachern, *Explorations in Role Analysis: Studies of the School Superintendency Role* (New York: John Wiley & Sons, Inc., 1958), p. 124.

To sum up: Viewing school systems as organizations from a sociological perspective suggests major organizational barriers to their effective functioning. We have emphasized two of these blocks: lack of agreement on organizational goals and lack of consensus on the role definitions associated with educational positions.

THE CLASSROOM AS A SOCIAL SYSTEM

Parsons, in a recent paper, presents a provocative theoretical analysis of the school class as a social system from the viewpoint of its functions for American society.[6] Coleman's analysis of the structure of competition in the high school and its influence on academic achievement clearly has implications for isolating forces that influence the "academic output" of the classroom.[7] These analyses, plus those of sociologists like Gordon[8] and Brookover,[9] suggest the importance of a sociological perspective in examining the structure and functioning of the classroom as a social system.

[5] Melvin Seeman, "Role Conflict and Ambivalence in Leadership," *American Sociological Review,* XVIII (August, 1953), pp. 373-80; also see Charles E. Bidwell, "The Administrative Role and Satisfaction in Teaching," *Journal of Educational Sociology,* XXIX (September, 1955), pp. 41-47.

[6] Talcott Parsons, "The School Class as a Social System: Some of Its Functions in American Society," *Harvard Educational Review,* XXIX (Fall, 1959), pp. 297-318.

[7] James S. Coleman, "Academic Achievement and the Structure of Competition," *Harvard Educational Review,* XXIX (Fall, 1959), pp. 330-51.

[8] C. Wayne Gordon, *The Social System of the High School: A Study in the Sociology of Adolescence* (Glencoe, Ill.: The Free Press, 1957).

[9] Wilbur B. Brookover, "The Social Roles of Teachers and Pupil Achievement," *American Sociological Review,* VIII (August, 1943), pp. 389-93.

At this stage of sociological and socio-psychological inquiry on the classroom as a social system, the major empirical contributions of the sociologist have undoubtedly been to draw attention to the sociometric structure of the classroom and to isolate basic sources of strain and tension to which teachers are exposed in the classroom. Sociometric studies reveal that classrooms typically contain "stars" and "isolates," and they have uncovered factors that affect student interpersonal relations in the school class.[10] Of especial importance to educators is the finding that teachers appear to misperceive frequently the interpersonal relationships among students in their classrooms.[11] They do not show high sensitivity to the way children actually react to each other and they frequently allow their own biases toward students to hinder a correct assessment of the "sociometric facts of life."

A second sociological contribution to the understanding of classroom behavior stems from the isolation of some potential sources of strain for the classroom teacher. One source of stress is the collision between the authority structure of the school and the professional status of the teaching staff. A school system must provide for the coordination and integration of the work of its members. Someone has to assign responsibilities, see that tasks are accomplished, and have the power to sanction teachers and students for deviant behavior. The elementary school principal, for example, as the formal leader of his school has to make room assignments and final decisions about the disposition of discipline problems. He must also see that the educational experiences of the child in the first grade are integrated with those he receives in the second and third grades. This requires some type of control over the work content and work output of teachers at each of these levels. Their classroom behavior is part of his concern. The authority structure, however, conflicts with another characteristic of school organization—the school is staffed with professional personnel. A professional worker is supposed to have autonomy over his own activities. This implies that the teacher should have considerable freedom in the manner in which he con- is supposed to have autonomy over his own activities. This implies that the students. It is this built-in source of strain that in part accounts for the "social distance" that frequently exists between school principals and their

[10] See Lloyd A. Cook, "An Experimental Sociographic Study of a Stratified 10th Grade Class," *American Sociological Review*, X (April, 1945), pp. 250-61; Otto H. Dahlke and Thomas O. Monahan, "Problems in the Application of Sociometry to Schools," *School Review*, LVII (April, 1949), pp. 223-34; Robert J. Havighurst and Bernice L. Neugarten, *Society and Education* (Boston: Allyn and Bacon, 1957); and August B. Hollingshead, *Elmtown's Youth* (New York: John Wiley & Sons, Inc., 1949).

[11] Merl E. Bonney, "Sociometric Study of Agreement between Teacher Judgments and Student Choices: In Regard to the Number of Friends Possessed by High School Students," *Sociometry*, X (May, 1947), pp. 133-46; and Norman E. Gronlund, "The Accuracy of Teachers' Judgments concerning the Sociometric Status of Sixth-Grade Pupils," *Sociometry*, XIII (August, 1950), part 1, pp. 197-225; part 2, pp. 329-57.

teachers and for the charge—by teachers—that administrators upset "their" classes. The clash between the authority structure and the professional status of teachers is also undoubtedly reflected in the latent and overt opposition of teachers to the introduction of new educational practices.

A second source of strain derives from the differential norms held by teachers and students for the student's behavior. Gordon's analysis[12] of a high school suggests the differential frames of reference that may be operating in many classrooms. His analysis indicates that teachers expected students to perform in a manner that approximated their knowledge and ability potential. But students' expectations were in part based on the informal social structure and values of the students. He indicates that student stereotypes had an important influence on the "roles" students assigned each other and played themselves, and that these stereotypes therefore affected their role performance. When student-defined and teacher-defined roles and values were incompatible, the net result was strain for the teacher in his transactions with students.

Another contribution of a sociological perspective on classroom behavior is demonstrated by the current work of Lippitt and his associates at the University of Michigan on the "socially unaccepted" child in the classroom. In addition to showing the need for a typology of such children, their studies suggest the powerful group forces operating on the unaccepted child. The major barriers to changing his behavior may be in the classroom, rather than or in addition to forces within the child. This finding has important implications for teachers and also for school guidance practices which are usually based on the assumption that individual counseling is the only way to change a student's behavior. The observation that the attributes and stereotypes of classmates as well as the teacher are barriers to behavior changes is one demanding rigorous exploration.

In addition, sociological analysis strongly suggests that the attitudes and behavior of the individual are strongly linked to those groups to which he belongs or aspires. These reference groups constitute "anchoring points" which have to be considered in inducing changed behavior. For the classroom teacher, the important consequence of this observation is that to deal effectively with a child may require isolating group forces that are constraining his behavior and inducing changes in clique norms and values.

THE EXTERNAL ENVIRONMENT OF THE SCHOOL

A school system does not exist in a vacuum. Its existence and functioning depend in part on its outside world, its external environment. This sociological point of view has many implications for the analysis of school systems.

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[12] Gordon, *op. cit.*

One implication is that changes in the larger social system of the community materially affect the composition of the student body in a school system, and therefore may require modifications in the curriculum. The heavy migration of the rural population in the South to metropolitan centers implies that many large city school systems need to undertake a critical review of the ability of their school program to meet the needs of the school's changed clientele. The empty school buildings in the center of many cities and the needed new school buildings in suburban areas, associated with the recent "flight to the suburbs," suggest the need for a metropolitan approach to school planning, a concept infrequently considered in educational circles. In short, the educational implications of demographic studies require considerably greater attention by educators.

A second aspect of the external environment of public school systems to which sociologists have given considerable attention is the social class structure of communities. Studies in this area[13] reveal that most aspects of school functioning are influenced by social class phenomena. Research on social class strongly supports the notion that teacher grading practices and the criteria which teachers apply to children are related to the social class placement of the child and the teacher. The mobility aspirations of children, the drop-out rate, participation in extra-curricular activities, dating behavior, and friendship patterns are in part accounted for by the socio-economic characteristics of the child's family.

A third "external environment" factor that has important implications for the public schools is the power structure or structures of the community.[14] School systems absorb a large portion of the local tax dollar and the influence of informal and formal power agents in the community on educational budgetary decisions is without doubt a basic influence on the quality of the staff and the program of a school system. It is not surprising that national meetings of educational administrators usually have sessions devoted to "techniques for studying community power structure" and that sociologists are invited to participate in them.

A fourth contribution of sociology to the understanding of the external environment of the schools is the analysis of the basic link between the community and the schools—the school board. Charters has questioned the assumption, frequently found in the educational literature, that the disproportionate incidence of school board members from upper socio-economic strata results in "a conservative bias" in public education.[15] Sociological research has demonstrated the impact of the behavior of school board members and of their motivation for seeking election to this position on the superintendent's job satisfaction and his job performance. The effect of such factors as religion, occupation, and income on the school board member's behavior as well as the pressures to which school administrators are exposed by their school boards have also been examined. These findings lead to the general conclusion that a crucial, but frequently neglected, variable influencing the operation of the school is the behavior of the small group of laymen who are its official policy-makers.[16] This conclusion has had many important ramifications, one of which is the National School Board Association's current effort to improve the "quality" of school board members.

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[13] For a summary of these studies see Wilbur B. Brookover, *A Sociology of Education* (New York: American Book Co., 1955); and Havighurst and Neugarten, *op. cit.* For a critical appraisal of some of this literature see Neal Gross, "Social Class Structure and American Education," *Harvard Educational Review*, XXIII (Fall, 1953), pp. 298-329.

[14] See, for example, Robert E. Agger, "Power Attributions in the Local Community," *Social Forces*, XXXIV (May, 1956), pp. 322-31; Floyd Hunter, *Community Power Structure: A Study of Decision Makers* (Chapel Hill: University of North Carolina Press, 1953); Peter Rossi, "Community Decision Making," *Administrative Science Quarterly*, I (March, 1957), pp. 415-41; and Robert O. Schulze, "The Role of Economic Dominants in Community Power Structure," *American Sociological Review*, XXIII (February, 1958), pp. 3-9.

A fifth sociological contribution emerges from the analysis of inter-role conflicts to which educational personnel are exposed as a consequence of their occupancy of positions in schools and in other social systems. Getzels and Guba[17] found that many of the expectations linked to the teacher's position conflict with other positions he occupies, and that some of these conflicts are a function of local school and community conditions.

The school superintendent's position is especially exposed to inter-role conflict. His job and the way he carries it out influence in some way virtually all members of the community. In dealing with him, members of his church, his personal friends, members of other organizations to which he may belong, and, of course, his wife and family, are inclined to identify him not only as a fellow church member, for example, but as a fellow church member who is at the same time the superintendent of schools.

Some unpublished findings of the School Executive Studies[18] shed light on the kinds of inter-role conflicts to which school superintendents are exposed. Twenty per cent of the superintendents reported that they faced incompatible expectations deriving from their simultaneous occupancy of positions in the *educational and religious systems*. The formal leaders and certain members of their church expected them to act in one way regarding certain issues, while other individuals and groups expected contrary behavior. One Catholic superintendent said that he faced situations like this all the time:

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[15] W. W. Charters, Jr., "Social Class Analysis and the Control of Public Education," *Harvard Educational Review*, XXIII (Fall, 1953), pp. 268-83.

[16] For a report of the specific findings leading to this conclusion, see Gross, *Who Runs Our Schools?, op. cit.*

[17] J. W. Getzels and E. G. Guba, "The Structure of Roles and Role Conflict in the Teaching Situation," *Journal of Educational Sociology*, XXIX (September, 1955), pp. 30-40.

[18] For other findings of the School Executive Studies, see Gross, Mason, and McEachern, *op. cit.*; and Gross, *Who Runs Our Schools?, op. cit.*

> Sometimes, the situation gets pretty touchy. I want to keep good relations with the Church. Don't forget—most of my school committee members and the local politicians belong to my church. Take this for example: one of the Catholic groups wanted to let the kids out early from school. They were having some special meetings, and they wanted the kids to be there. I knew that wouldn't be right. It wasn't fair to the other kids. So what did I do? I refused to give an official o.k. to the request, but at the time I simply winked at it [letting them out early]. I would have offended them if I'd stopped the kids from going, and I just couldn't afford to do that. It really left me bothered. Should I have stopped it? Legally, I could and I would have been right. But I know I would have had hell to pay.

Another superintendent, a Protestant, told the interviewer:

> [My] minister wants all kinds of special favors because I am a member of his church. He expected me to turn over our gym to the church basketball team. He wanted me to support his idea of giving out a Bible to each public school child. He told me that he thought I ought to see that more of 'our people' get jobs in the school. None of these are fair requests. I'm supposed to represent all the people, and I want to use the criterion of 'what's best for the schools,' not 'what's best for my church.' I might give him the gym, but it would be worth my job to give in on the Bibles in this community. I try not to play favorites, but sometimes it's hard to know what is the right thing to do.

Of perhaps as great personal and emotional significance to superintendents are the role conflicts arising from the expectations of their *personal friends* which are incompatible with those held by other individuals and groups in the community. Thirty-five percent of the superintendents reported conflicts of this kind.

Although some superintendents said that their "personal friends" expected special consideration in the areas of personnel decisions and the allocation of school contracts, more often the superintendents said that their friends expected special consideration for their children. These included requests that teachers be reprimanded for treating their children unfairly, that their children be transferred to a school in another district, that transportation be provided for children who are not entitled to it, that their children be promoted against the best judgment of the teacher and principal involved, and so on. Each of these "special consideration" expectations is incompatible with procedures and principles which the superintendent is expected to follow and which are set by the school board, by the teachers, and by PTA groups. Undoubtedly there are many requests of this kind which superintendents automatically ignore or refuse and which they did not mention in the interview; it is when these requests come from personal friends and when these friends expect the superintendent to make particular concessions, that the superintendents describe them as "role conflict" situations.

One superintendent said:

> [One of the] nastiest aspects of my job is bus transportation. Good friends of mine have the nerve to telephone me, the superintendent of schools, and ask that a bus pick up their children, when they know, and I know, and the bus driver knows, that they live within the one-mile limit. I tell them I don't drive the bus. I'm just superintendent of schools. Talk to the bus driver. They think I'm saying okay, and I guess I am if you come right down to it. Someday I guess I'll get into trouble when someone who doesn't have the gall to come to me goes to the committee and says 'so and so, the superintendent's friend, has his kids picked up. Why can't I have mine?' It's all in the game and sometimes the game is rough.

A third role conflict situation frequently mentioned involved the *superintendency and the father positions.* Forty-eight per cent of the superintendents described conflicts of this type.

The superintendents reported a wide variety of situations in which their children expected one thing and others expected something quite different. One superintendent who was greatly troubled by problems in this area described his situation in this way:

> You know one of the worst things about this job that you never think of before you get into it is its effect on your children. You don't have time for your children. You have to be out every night and it just isn't fair to them. They don't like it; they resent it. And then the kids have a cross to bear. Either they get especially soft or especially rough treatment by the teachers. And the teachers are just waiting for you to throw your weight around.
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> For example, my boy has told me certain things about one of his teachers—the way she behaves in the classroom. He's an honest youngster so I have no reason to doubt him, and if I were not the superintendent you can be darn sure I'd raise a lot of cain. But as the superintendent I'm not supposed to invade a teacher's classroom. So I try to support the teacher even though I know she is in the wrong. I feel pretty mean about this, but what else can I do? I hope my boy will understand the situation better later on.

Eighteen percent of the superintendents mentioned inter-role conflicts stemming from incompatible expectations held for their behavior as a *member of a local community association and as the superintendent.* For example, in many communities certain local organizations to which the superintendent belonged expected him to allow them to use the time of students and staff to achieve their own organizational objectives, whereas the professional school staff expected him to protect the schools from this type of "invasion." School superintendents are exposed to requests for school children to be active in fund raising activities, for the school band to play in parades, and for the schools to participate in youth activities. Local community groups expect the superintendent to facilitate their use of these school resources. On the other hand, many superintendents know that one of the major complaints of their faculty is that this type of activity frequently disrupts classroom activities and planned school programs. This constitutes a difficult area of decision making, especially when the organization in question has a powerful voice in community affairs.

These findings support the proposition that inter-role conflicts stemming from occupancy of positions in the school system and in the environment external to it constitute a basic source of potential stress for the educator.

There are dangers to be avoided as well as benefits to be derived from the closer alignment between the fields of sociology and education. One of these dangers is to overgeneralize sociological research findings that apply to a single case or a small population to American education or American society when there is no logical basis for such induction. Sociologists as well as educators have erred in this respect. A second pitfall is the uncritical acceptance of unverified pronouncements of sociologists as verified propositions. There are many statements to be found in textbooks of educational sociology that are speculative in nature and which are not based on rigorous research evidence. Hunches and speculations need to be distinguished from verified propositions. A third danger is the acceptance of sociological research findings without critical examination of their assumptions, the adequacy of their research methods, and their conclusions. The literature on the influence of social class structure in American education is permeated with each of these, as well as other, pitfalls in the sociology-education mating process. The educational practitioner needs to be aware of these difficulties in his utilization of sociological analyses of educational problems.

These precautionary observations lead to the consideration of the major contribution of the sociologist to educational practitioners. The teacher or school administrator must constantly bear in mind that he is working in a complex environment in which many variables are at play. The forces are multidimensional and his environment, although it shares common features with the situation confronting other educational practitioners, has many unique features. The sociologist, however, usually defines his problem so that he is working with one or a few independent variables (for example, social class or leadership structure) and one dependent variable (for example, academic achievement or sociometric choice), and he attempts to control other variables that may be influencing the relationships he is investigating. Of necessity he must simplify his problem so he can deal with it. He usually assumes multiple causation but his methodological tools allow him to deal with only a very limited number of the forces that may account for the phenomena he is trying to explain. He never deals with *all* the variables that the practitioner probably needs to take into account in his decision making. Further, the research findings of the sociologist may not be applicable to the particular set of conditions confronting the practitioner. Research findings based on a sample of suburban school systems may not hold for city school systems. These considerations lead to the following point of view about the sociologist's major contribution to the educational practitioner. What the sociologist has to offer is basically a series of sensitizing and analytic concepts and ideas based on theoretical and empirical analysis that will allow the practitioner to examine in a more realistic and more incisive way the multiple forces operating in his social environment. The sociologist cannot make the educational practitioner's decisions for him, nor can the sociologist's research findings based on one population be applied to any educational population indiscriminately. The practitioner's task is to assess the various forces that have a bearing on the achievement of his objectives, assign them relative weights, and make a decision based on these calculations. The basic sociological contribution is to add to the educator's kit of intellectual tools a set of sociological insights and concepts that will allow him to take account in his decision-making organizational, cultural, and interpersonal factors at work in his environment.

Education and Social Structure: Theories and Methods*

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DISCUSSION of the relationship of education to social structure is at least as old as Plato and Aristotle, and is renewed at every period of crisis in social development; indeed, every landmark in political theory has its counterpart in educational theory. Since the development of a self-conscious "sociology," a path has been opened towards the serious treatment of education as a social institution, but it has not so far been followed for any distance. In particular, the sociology of education in industrialised societies suffers from the rank heritage of philosophical and sociological confusions on which it has to build.

Of the acknowledged masters, Durkheim and Weber made the only important theoretical contributions to the study of education as a social institution,[1] though Thorstein Veblen contributed, in *The Higher Learning,*

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[1] E. Durkheim, *Education and Sociology*, trans. S. D. Fox (Glencoe, Ill.: The Free Press, 1956); and *L'Education Morale* (Paris: F. Alcan, 1925). H. H. Gerth and C. W. Mills (eds. and trans.), *From Max Weber: Essays in Sociology* (New York: Oxford University Press, 1946).

a brilliant practical example of the possibilities of this kind of sociology.[2] In a later generation, Karl Mannheim produced a unique educational message, the climax of a long tradition of politically and ideologically inspired sociological thought on education, a blend of all contributions, from Plato through Marx to Ward and Dewey with the newer fruits of the European psychoanalytic movement of the twenties and thirties of the present century.[3] Yet none of these writers seems to have faced the fundamental difficulty in the sociology of education; namely, that of presenting an orderly and coherent analysis of an institution which by its nature confounds social-psychological and sociological issues, straddling as it does the psychology and the organisational structure of society.

This point was touched upon by Meyer Fortes in his account of education among the Tallensi. He states, but without developing the point further, that "the problem presented [to the social analyst] by this [educational] function of society is of an entirely different order from that presented by the religious or economic or political system of a people. The former is primarily a problem of genetic psychology, the latter of cultural or sociological analysis."[4] It is, of course, true that education in the broadest sense is the transmission of culture through the socialisation of individuals; every society is, in a manner of speaking, an educative society, providing for the transmission of its culture and the formation of the personalities of its members; and there is always the dual problem, at once social-psychological and sociological, of analysing these processes and the institutional framework within which they take place. But a fresh set of purely sociological problems is created as soon as educational tasks are performed by specialised agencies, since the possibility then arises that these may behave as relatively independent variables in the functioning of the social system, promoting or impeding change and producing unintended as well as intended, and dysfunctional as well as functional, consequences.

In societies at pre-industrial stages of development, what we may call the structural problems of education are either non-existent or relatively uncomplicated. Under the typical social conditions of primitive peoples there are no processes of social selection or differentiation, and therefore no problems of "organic solidarity." The educational problem really is primarily one of "genetic psychology," and well-institutionalised processes of socialisation in the family and in organised relations between the generations provide both the necessary instruction in relatively simple economic skills and induction into a homogeneous and relatively unchanging spiritual and social life.

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[2] T. Veblen, *The Higher Learning in America* (New York: B. W. Huebsch, 1918).

[3] E.g., in *Diagnosis of Our Time* (New York: Oxford University Press, 1944); *Essays on the Sociology of Culture* (London: Routledge and Paul, 1956); *Essays on the Sociology of Knowledge* (New York: Oxford University Press, 1952); *Ideology and Utopia* (New York: Harcourt, Brace and Co., 1936); and *Man and Society in an Age of Reconstruction* (New York: Harcourt, Brace and Co., 1940).

[4] M. Fortes, *Social and Psychological Aspects of Education in Taleland* (London: Oxford University Press, 1938), p. 6.

At later, even quite advanced—though still pre-industrial—stages of development, characterised by fairly complex patterns of division of labour and of stratification, the educational problem may still usefully be thought of in terms of genetic psychology or individual socialisation. As Weber shows, formal education in such societies is primarily a differentiating agency, preparing individuals for a particular style of life. Men are socialised into social groups having relatively stable relationships to each other. Each is educated "according to his station" and, other things being equal, consensus and integration follow. Of course, other things are not always equal. Formal education becomes an object of political dispute as newly-emerging or dissident social groups claim right of entry or the right to school their young according to their own lights. Nevertheless, the relationship between education and social structure remains in principle relatively simple until the onset of industrialism, which greatly complicates it.

This is partly because industrialism, in speeding up the rate of social change, attenuates the relations between sub-groups in the system of division of labour and thus between individuals and the wider social structure; but it is mainly, perhaps, because industrialism throws new burdens on educational institutions—the burdens of mass instruction, promotion of scientific and technological advance, occupational recruitment, and social selection. Under conditions of advanced industrialism, indeed, the economy becomes increasingly dominated by institutions of research and technological innovation, with the result that the differentiation of educational institutions and functions assumes new proportions. So much is this so that the educational system comes to occupy a strategic place as a central determinant of the economic, political, social, and cultural character of society, and we propose using the term "technological society" to distinguish the stage of industrialisation in which these processes have developed.

In fact, the contribution of education to social persistence and development in the vast, ramshackle, and relatively atomised structures of advanced industrial societies is difficult to determine with any precision; it plays a role in relation to all aspects of social structure—demographic, economic, political, and social, as well as ideological or spiritual—and we are confronted no longer with a problem "primarily of genetic psychology" but with a problem of analysing a major institutional complex in very diverse relations with the wider structure of which it forms a part. Even the problem of "genetic psychology," which of course is not disposed of, is complicated under these circumstances by the need to answer questions about the part actually played by the formal institutions of learning in the socialisation of children and young people; and these questions cannot be answered without embarking on a far-reaching analysis of the nature and purposes of these institutions and of their internal life. In short, industrialism gives rise to—or at least, justifies—the sociology of education as a specialised field of study.

To treat the educational systems of developed societies as social institutions, asking the same questions about them in principle as one asks about other social institutions and seeking the answers in the main with the aid of similar methods, involves enquiry at various levels.

On the most general, macrocosmic level, the task is to study the educational system in its relations with the wider social structure—that is, in relation to the value system, the demography, the economy, and the political and stratification systems, always bearing in mind its relation to tendencies for change and development in each of these fields of behaviour.

At a less general level, the social structure and functioning of the constituent groups of the system—schools, universities, etc.,—must be studied; each will have its characteristic value-system, its demography, and its economic, power, and status structures, to be studied for themselves and in interrelation. And it is worth pointing out that work at this level on the sociology of educational institutions cannot be effective unless something is known of structural relations and trends at the macrocosmic level just mentioned. These are the source of the subtle transformations of function which schools, colleges, and universities undergo without overt redirection of aim or radical reorganisation and which generate the pressures and tensions underlying and permeating their daily lives as on-going concerns.

At what may be termed the microcosmic level, the social relations inherent in, or arising out of, educational activities are studied—the social psychology of classroom and school (as, for example, social distance and modes of authority in the learning situation) and "the separate culture of the school," as Waller[5] aptly termed it ("la vie scolaire" in Durkheim's phrase).

Finally, our attention must be directed beyond the school or university to the educational influences implicit in the social environment of pupils and teachers, supporting or frustrating the tacit and explicit educational intentions of these institutions, but extraneous to them (as in family, neighbourhood, or religious community).

Thus, in primitive societies, the educational problem is that of individual socialisation in the interests of consensus and integration; and an anthropologist interested in education in these societies is concerned with relations between the generations wherever they occur, but especially within the family, and with sub-structures such as age-sets and religious fraternities

[5] W. Waller, *The Sociology of Teaching* (New York: John Wiley & Sons, Inc., 1932).

carrying socialising functions. The focus of attention for the sociologist working in industrial and technological societies, however, must be on formal and specialised educational institutions. His concern is with the social forces which create and mould pedagogical aims and educational policies and the institutions in which they are embodied; and also with these institutions themselves, and with their functions as, in some measure, independent parts of a wider and changing social structure. This is the context in which he comes to the fundamental problems of social integration through the socialisation of individuals, and of persistence and development through the transmission of culture. The approach is indirect, but there is no short cut.

The sociology and the "anthropology" of education must in practice tend to be separate fields of enquiry because of the different problems and method involved in studying, on the one hand the socialising process in primitive society, and on the other the structural relations and internal functioning of the elaborate educational provision characteristic of more developed societies. Nevertheless, it is obvious that the comparative study of education in societies at various stages of development takes on an enhanced interest and value in the light of the complexities of life in industrialised societies. Thus, a strong movement among certain, mainly American, anthropologists has been concerned to emphasise the implications of their work in primitive societies for the study of education in developed societies.[6]

This anthropological influence on the sociology of education takes two forms, one straightforward and on the whole beneficial; the other more subtle, and on the whole harmful. The straightforward influence is exercised when anthropological findings are used as a vantage point for direct critical analysis of modern educational forms, sometimes, as in the writings of Margaret Mead on adolescence,[7] in a way reminiscent of Durkheim's interest in the problems of moral education of the members of industrial, specialised society. The same direct influence can also be seen in studies of out-of-school influences on the formal educational process and, in particular, in community studies of education of the kind undertaken by Warner and his associates, research on social class influences on learning, and the study of education among Negroes and immigrant minority groups. On balance, this influence has been beneficial; on the one hand it has diffused, especially in educational circles, an awareness of the wide range of cultural forces impinging on the educational process both inside and outside school; and, on the other, it has inspired investigations of the subtler aspects of social processes such as selection, differentiation, and mobility.

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[6] G. Spindler (ed.), *Education and Anthropology* (Stanford, Calif.: Stanford University Press, 1955).

[7] M. Mead, *Coming of Age in Samoa* (New York: William Morrow & Co., 1928); and *Growing Up in New Guinea* (New York: William Morrow & Co., 1930).

The indirect influence is methodological in character. "Structural-functionalism" is *par excellence* the anthropologist's approach to social analysis. The notion of social equilibrium is central to this view of society, which is then regarded as a system, rather than as a conative whole, as an entity rather than as a process—or, if a process, then as a process of a special kind in which education, for instance, is seen simply as one term of a relationship which is supposed to reproduce itself in a dynamic equilibrium. The structural-functionalist is preoccupied with social integration based on shared values—i.e., with consensus—and he conducts his analysis solely in terms of the motivated actions of individuals. For him, therefore, education is a means of motivating individuals to behave in ways appropriate to maintain the society in a state of equilibrium. But this is a difficult notion to apply to developed, especially industrialised societies, even if the notion of equilibrium is interpreted dynamically. They are dominated by social change, and "consensus" and "integration" can be only very loosely conceived in regard to them.

Thus, if we take first the problem of integration, the social anthropologist, or the sociologist working with structural-functional concepts, interprets the relation of education to society either psychologically, to mean that education makes its contribution to social cohesion through the formation of the "basic personality," or ideologically, through the inculcation of an appropriate set of common values. Yet it seems doubtful whether this notion of 'integration' can be applied to the ramified, complex structures of modern industrialised societies. In any case, it is clearly easy to exaggerate both the actual and the possible contribution of formal educational institutions to consensus in these societies, whether we think in terms of the formation of basic personality or of the inculcation of a common set of values. It need hardly be said that the importance of schools and universities as agencies of socialisation in relation to the social-class and occupational structures, and thus their contribution to a shambling sort of social integration, is not in doubt; but what are we to understand by consensus in these societies? Durkheim and Mannheim both wrestled with the problem; the former had recourse to a syndicalist, the latter to a platonic-totalitarian, solution.

It seems likely that when we are dealing with the mass educational services which are a feature of modern societies, "instruction" looms larger than "education," in the broad sense of the term which is relevant to problems of personality-formation or the transmission of cultural values. Admittedly, the distinction between instruction and education must not be ridden too hard. There is evidently a point—and this is especially clear when one considers the introduction of widespread formal schooling into underdeveloped societies—beyond which one cannot instruct without educating, since the use, not to say acquisition, of certain kinds of skill and knowledge implies and requires a context of appropriate attitudes and values. The important point is that these attitudes and values may be specific and need not be shared throughout the society; consensus need not take the form of adherence to a set of common values, and integration in differentiated societies need not be based on this kind of consensus.

All this is not to say that in industrial society the strictly educational problem of socialisation, of "genetic psychology," does not exist. Of course it does, and of course formal educational institutions such as schools and universities play a part in the process of socialisation. The point of these remarks is to emphasise that socialisation is by no means their only or even, in all cases, their prime function; and that in any case, whatever the intentions of teachers and policy-makers, industrialism calls into being other latent and manifest social functions of educational institutions, and features of their organisation such as bureaucratisation, which may overtly or covertly overshadow, impede, or transmute their educational function. Thus, if for sociological purposes they are treated more or less exclusively in terms of their supposed contribution to individual socialisation and social cohesion, the effect is at once to over-simplify and exaggerate their independent structural role.

Structural-functionalism, it is suggested, tends to play down problems of social change, and is therefore, for this reason too, unsuitable for the analysis of modern industrial societies. But it must be admitted that even where they are not burdened by the methodological shortcomings of this approach, sociologists have not achieved any great insight into the problems of education in relation to social change.

Until the recent rise of structural-functionalism, the discussion of these problems was dominated by the American pragmatists with their off-shoots in the advocates of the community school. The belief that education can act as a direct agent of social change was central to the convictions of men like Ward and Dewey and reflected the influence on their thought of rationalism and utilitarianism (which, it may be remarked, also entered into the thinking about education of the Christian Socialists and aroused the hostility of the Marxists, who saw education simply as a major weapon in the class war). European sociologists, on the other hand, have always postulated the dependence of education on the form of social structure, regarding it as an "adaptive" institution; that is to say, they have taken a fundamentally conservative view of the social role of education.

Mannhein drew heavily on both traditions; education was for him sociology in action. His notion of "social education" was a notion of a planned educative society, based on sociological understanding of the structural needs and possibilities of a "democratic" (industrial) order and implemented with the aid of social psychology. He did not fall into the common error of supposing education to be always and inevitably either the dependent or the independent variable in social change. He had no naive belief in the powers of rational persuasion or the spread of "sweetness and light" through education; nor on the other hand would he have subscribed to the uncompromising view that education always follows and can never initiate change. He well understood that "the causes of social change are motivated acts, but the motives are shaped by changes in the conditions,"[8] and he placed his faith in the sociological analysis of conditions and the social-psychological (educational) manipulation of motives. Nevertheless, his failure to analyse, among the conditions, the characteristic structural position of modern educational institutions, is striking; and this vital omission can no doubt be traced to his failure, also, to undertake any analysis of the part actually played by education in various social changes which would have illuminated its varying role–sometimes cause, sometimes condition, and sometimes consequence of change.

Thus Mannheim was never able decisively to raise the level of the discussion of the relation of education to social change; and this has always been lamentably low, geared to trivial and impoverished ideas of what is to be understood by social change and a crude notion of a one-sided causality. Analyses of concrete examples of the bearing of education on social change are singularly hard to come by. The greater part of the relevant literature consists of hortatory and reformist tracts and treatises, opposition to which has produced only some shift of allegiance, on the same plane of rather fruitless abstraction, from belief in the force of "values" which it is supposedly the job of education to influence, to a conviction that technological innovations behave as independent social variables, bringing educational changes more or less promptly in their wake. One may search almost in vain for discussion of the unintended consequences of education, or of the social forces responsible for changes in educational values and institutions, or of the subtle transformation of function undergone by relatively stable educational institutions. And—to take a single striking example—we confront the problems of technical assistance and mass education programmes in underdeveloped societies today with virtually no understanding of the past actually played by education in economic growth; although, it is true, the social anthropologists have directed attention, for the most part in general terms, to be potentially dysfunctional consequences and to the cultural obstacles to the success of programmes of educational expansion in underdeveloped societies.

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[8] M. Ginsberg, "Social Change," *British Journal of Sociology*, IX (September, 1958), p. 213.

Our thesis, then, is that the weaknesses of the sociology of education are the result, in part, of the fact that too few professional sociologists have paid it detailed and systematic attention, so that the new problems raised by the development of industrialism have gone unnoticed or unexplored for their theoretical and practical implications; that the current interest of social anthropologists in education is proving, for methodological reasons, a mixed blessing; and that the field of work for the sociologist concerned with developed societies must be defined in institutional, not functional terms—that is, in terms of the study of specialised educational institutions and their personnel, and not in terms of education as socialisation, or an exercise in "genetic psychology." The sociology of educational institutions in developed societies needs to be undertaken for its own sake and in the same terms as the specialised study of other social institutions. Only the detailed study of educational institutions in relation to various aspects of the wider social structure can provide the indispensable framework for the analysis of their structure and functioning and of their contribution to the perennial and crucial problems of social organisation; namely, the problems of socialising individuals, transmitting culture, and maintaining social cohesion.

The School Class as a Social System: Some of Its Functions in American Society*

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THIS ESSAY WILL ATTEMPT TO OUTLINE, if only sketchily, an analysis of the elementary and secondary school class as a social system, and the relation of its structure to its primary functions in the society as an agency of socialization and allocation. While it is important that the school class is normally part of the larger organization of a school, the class rather than the whole school will be the unit of analysis here, for it is recognized both by the school system and by the individual pupil as the place where the "business" of formal education actually takes place. In elementary schools, pupils of one grade are typically placed in a single "class" under one main teacher, but in the secondary school, and sometimes in the upper elementary grades, the pupil works on different subjects under different teachers; here the complex of classes participated in by the same pupil is the significant unit for our purposes.

THE PROBLEM: SOCIALIZATION AND SELECTION

Our main interest, then, is in a dual problem: first of how the school class functions to internalize in its pupils both the commitments and capacities for successful performance of their future adult roles, and second of how it functions to allocate these human resources within the role-structure of the adult society. The primary ways in which these two problems are interrelated will provide our main points of reference.

First, from the functional point of view the school class can be treated as an agency of socialization. That is to say, it is an agency through which individual personalities are trained to be motivationally and technically adequate to the performance of adult roles. It is not the sole such agency;

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the family, informal "peer groups," churches, and sundry voluntary organizations all play a part, as does actual on-the-job training. But, in the period extending from entry into first grade until entry into the labor force or marriage, the school class may be regarded as the focal socializing agency.

The socialization function may be summed up as the development in individuals of the commitments and capacities which are essential prerequisites of their future role-performance. Commitments may be broken down in turn into two components: commitment to the implementation of the broad *values* of society, and commitment to the performance of a specific type of role within the *structure* of society. Thus a person in a relatively humble occupation may be a "solid citizen" in the sense of commitment to honest work in that occupation, without an intensive and sophisticated concern with the implementation of society's higher-level values. Or conversely, someone else might object to the anchorage of the feminine role in marriage and the family on the grounds that such anchorage keeps society's total talent resources from being distributed equitably to business, government, and so on. Capacities can also be broken down into two components, the first being competence or the skill to perform the tasks involved in the individual's roles, and the second being "role-responsibility" or the capacity to live up to other people's expectations of the interpersonal behavior appropriate to these roles. Thus a mechanic as well as a doctor needs to have not only the basic "skills of his trade," but also the ability to behave responsibly toward those people with whom he is brought into contact in his work.

While on the one hand, the school class may be regarded as a primary agency by which these different components of commitments and capacities are generated, on the other hand, it is, from the point of view of the society, an agency of "manpower" allocation. It is well known that in American society there is a very high, and probably increasing, correlation between one's status level in the society and one's level of educational attainment. Both social status and educational level are obviously related to the occupational status which is attained. Now, as a result of the general process of both educational and occupational upgrading, completion of high school is increasingly coming to be the norm for minimum satisfactory educational attainment, and the most significant line for future occupational status has come to be drawn between members of an age-cohort who do and do not go to college.

We are interested, then, in what it is about the school class in our society that determines the distinction between the contingents of the age-cohort which do and do not go to college. Because of a tradition of localism and a rather pragmatic pluralism, there is apparently considerable variety among school systems of various cities and states. Although the situation in metropolitan Boston probably represents a more highly structured pattern than in many other parts of the country, it is probably not so extreme as to be misleading in its main features. There, though of course actual entry into college does not come until after graduation from high school, the main dividing line is between those who are and are not enrolled in the college preparatory course in high school; there is only a small amount of shifting either way after about the ninth grade when the decision is normally made. Furthermore, the evidence seems to be that by far the most important criterion of selection is the record of school performance in elementary school. These records are evaluated by teachers and principals, and there are few cases of entering the college preparatory course against their advice. It is therefore not stretching the evidence too far to say broadly that the primary selective process occurs through differential school performance in elementary school, and that the "seal" is put on it in junior high school.[1]

The evidence also is that the selective process is genuinely assortative. As in virtually all comparable processes, ascriptive as well as achieved factors influence the outcome. In this case, the ascriptive factor is the socio-economic status of the child's family, and the factor underlying his opportunity for achievement is his individual ability. In the study of 3,348 Boston high school boys on which these generalizations are based, each of these factors was quite highly correlated with planning college. For example, the percentages planning college, by father's occupation, were: 12 per cent for semi-skilled and unskilled, 19 per cent for skilled, 26 per cent for minor white collar, 52 per cent for middle white collar, and 80 per cent for major white collar. Likewise, intentions varied by ability (as measured by IQ), namely, 11 per cent for the lowest quintile, 17 per cent for the next, 24 per cent for the middle, 30 per cent for the next to the top, and 52 per cent for the highest. It should be noted also that within any ability quintile, the relationship of plans to father's occupation is seen. For example, within the very important top quintile in ability as measured, the range in college intentions was from 29 per cent for sons of laborers to 89 per cent for sons of major white collar persons.[2]

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[1] The principal source for these statements is a study of social mobility among boys in ten public high schools in the Boston metropolitan area, conducted by Samuel A. Stouffer, Florence R. Kluckhohn, and the present author. Unfortunately the material is not available in published form.

[2] See table from this study in J. A. Kahl, *The American Class Structure* (New York: Rinehart & Co., 1953), p. 283. Data from a nationwide sample of high school students, published by the Educational Testing Service, show similar patterns of relationships. For example, the ETS study shows variation, by father's occupation, in proportion of high school seniors planning college, of from 35 per cent to 80 per cent for boys and 27 per cent to 79 per cent for girls. (From *Background Factors Related to College Plans and College Enrollment among High School Students* [Princeton, N. J.: Educational Testing Service, 1957]).

The essential points here seem to be that there is a relatively uniform criterion of selection operating to differentiate between the college and the non-college contingents, and that for a very important part of the cohort the operation of this criterion is not a "put-up job"—it is not simply a way of affirming a previously determined ascriptive status. To be sure, the high-status, high-ability boy is very likely indeed to go to college, and the low-status, low-ability boy is very unlikely to go. But the "cross-pressured" group for whom these two factors do not coincide[3] is of considerable importance.

Considerations like these lead me to conclude that the main process of differentiation (which from another point of view is selection) that occurs during elementary school takes place on a single main axis of *achievement*. Broadly, moreover, the differentiation leads up through high school to a bifurcation into college-goers and non-college-goers.

To assess the significance of this pattern, let us look at its place in the socialization of the individual. Entering the system of formal education is the child's first major step out of primary involvement in his family of orientation. Within the family certain foundations of his motivational system have been laid down. But the only characteristic fundamental to later roles which has clearly been "determined" and psychologically stamped in by that time is sex role. The postoedipal child enters the system of formal education clearly categorized as boy or girl, but beyond that his *role* is not yet differentiated. The process of selection, by which persons will select and be selected for categories of roles, is yet to take place.

On grounds which cannot be gone into here, it may be said that the most important single predispositional factor with which the child enters the school is his level of *independence*. By this is meant his level of self-sufficiency relative to guidance by adults, his capacity to take responsibility and to make his own decisions in coping with new and varying situations. This, like his sex role, he has as a function of his experience in the family.

The family is a collectivity within which the basic status-structure is ascribed in terms of biological position, that is, by generation, sex, and age. There are inevitably differences of performance relative to these, and they are rewarded and punished in ways that contribute to differential character formation. But these differences are not given the sanction of institutionalized social status. The school is the first socializing agency in the child's experience which institutionalizes a differentiation of status on nonbiological bases. Moreover, this is not an ascribed but an achieved status; it is the status "earned" by differential performance of the tasks set by the teacher, who is acting as an agent of the community's school system. Let us look at the structure of this situation.

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[3] There seem to be two main reasons why the high-status, low-ability group is not so important as its obverse. The first is that in a society of expanding educational and occupational opportunity the general trend is one of upgrading, and the social pressures to downward mobility are not as great as they would otherwise be. The second is that there are cushioning mechanisms which tend to protect the high status boy who has difficulty "making the grade." He may be sent to a college with low academic standards, he may go to schools where the line between ability levels is not rigorously drawn, etc.

THE STRUCTURE OF THE ELEMENTARY SCHOOL CLASS

In accord with the generally wide variability of American institutions, and of course the basically local control of school systems, there is considerable variability of school situations, but broadly they have a single relatively well-marked framework.[4] Particularly in the primary part of the elementary grades, i.e., the first three grades, the basic pattern includes one main teacher for the class, who teaches all subjects and who is in charge of the class generally. Sometimes this early, and frequently in later grades, other teachers are brought in for a few special subjects, particularly gym, music, and art, but this does not alter the central position of the main teacher. This teacher is usually a woman.[5] The class is with this one teacher for the school year, but usually no longer.

The class, then, is composed of about 25 age-peers of both sexes drawn from a relatively small geographical area—the neighborhood. Except for sex in certain respects, there is initially no formal basis for differentiation of status within the school class. The main structural differentiation develops gradually, on the single main axis indicated above as achievement. That the differentiation should occur on a single main axis is insured by four primary features of the situation. The first is the initial equalization of the "contestants' " status by age and by "family background," the neighborhood being typically much more homogeneous than is the whole society. The second circumstance is the imposition of a common set of tasks which is, compared to most other task-areas, strikingly undifferentiated. The school situation is far more like a race in this respect than most role-performance situations. Third, there is the sharp polarization between the pupils in their initial equality and the *single* teacher who is an adult and "represents" the adult world. And fourth, there is a relatively systematic process of evaluation of the pupils' performances. From the point of view of a pupil, this evaluation, particularly (though not exclusively) in the form of report card marks, constitutes reward and/or punishment for past performance;

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[4] This discussion refers to public schools. Only about 13 per cent of all elementary and secondary school pupils attend non-public schools, with this proportion ranging from about 22 per cent in the Northeast to about 6 per cent in the South. U. S. Office of Education, *Biennial Survey of Education in the United States, 1954-56* (Washington: U. S. Government Printing Office, 1959), chap. ii, "Statistics of State School Systems, 1955-56," Table 44, p. 114.

[5] In 1955-56, 13 per cent of the public elementary school instructional staff in the United States were men. *Ibid.*, p. 7.

from the viewpoint of the school system acting as an allocating agency, it is a basis of *selection* for future status in society.

Two important sets of qualifications need to be kept in mind in interpreting this structural pattern, but I think these do not destroy the significance of its main outline. The first qualification is for variations in the formal organization and procedures of the school class itself. Here the most important kind of variation is that between relatively "traditional" schools and relatively "progressive" schools. The more traditional schools put more emphasis on discrete units of subject-matter, whereas the progressive type allows more "indirect" teaching through "projects" and broader topical interests where more than one bird can be killed with a stone. In progressive schools there is more emphasis on groups of pupils working together, compared to the traditional direct relation of the individual pupil to the teacher. This is related to the progressive emphasis on co-operation among the pupils rather than direct competition, to greater permissiveness as opposed to strictness of discipline, and to a de-emphasis on formal marking.[6] In some schools one of these components will be more prominent, and in others, another. That it is, however, an important range of variation is clear. It has to do, I think, very largely with the independence-dependence training which is so important to early socialization in the family. My broad interpretation is that those people who emphasize independence training will tend to be those who favor relatively progressive education. The relation of support for progressive education to relatively high socio-economic status and to "intellectual" interests and the like is well known. There is no contradiction between these emphases both on independence and on co-operation and group solidarity among pupils. In the first instance this is because the main focus of the independence problem at these ages is vis-à-vis adults. However, it can also be said that the peer group, which here is built into the school class, is an indirect field of expression of dependency needs, displaced from adults.

The second set of qualifications concerns the "informal" aspects of the school class, which are always somewhat at variance with the formal expectations. For instance, the formal pattern of nondifferentiation between the sexes may be modified informally, for the very salience of the one-sex peer group at this age period means that there is bound to be considerable implicit recognition of it—for example, in the form of teachers' encouraging group competition between boys and girls. Still, the fact of coeducation and the attempt to treat both sexes alike in all the crucial formal respects remain the most important. Another problem raised by informal organization is the question of how far teachers can and do treat pupils particularistically in violation of the universalistic expectations of the school. When compared with other types of formal organizations, however, I think the extent of this discrepancy in elementary schools is seen to be not unusual. The school class is structured so that opportunity for particularistic treatment is severely limited. Because there are so many more children in a school class than in a family and they are concentrated in a much narrower age range, the teacher has much less chance than does a parent to grant particularistic favors.

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[6] This summary of some contrasts between traditional and progressive patterns is derived from general reading in the literature rather than any single authoritative account.

Bearing in mind these two sets of qualifications, it is still fair, I think, to conclude that the major characteristics of the elementary school class in this country are such as have been outlined. It should be especially emphasized that more or less progressive schools, even with their relative lack of emphasis on formal marking, do not constitute a separate pattern, but rather a variant tendency within the same pattern. A progressive teacher, like any other, will form opinions about the different merits of her pupils relative to the values and goals of the class and will communicate these evaluations to them, informally if not formally. It is my impression that the extremer cases of playing down relative evaluation are confined to those upper-status schools where going to a "good" college is so fully taken for granted that for practical purposes it is an ascribed status. In other words, in interpreting these facts the selective function of the school class should be kept continually in the forefront of attention. Quite clearly its importance has not been decreasing; rather the contrary.

THE NATURE OF SCHOOL ACHIEVEMENT

What, now, of the content of the "achievement" expected of elementary school children? Perhaps the best broad characterization which can be given is that it involves the types of performance which are, on the one hand, appropriate to the school situation and, on the other hand, are felt by adults to be important in themselves. This vague and somewhat circular characterization may, as was mentioned earlier, be broken down into two main components. One of these is the more purely "cognitive" learning of information, skills, and frames of reference associated with empirical knowledge and technological mastery. The *written* language and the early phases of mathematical thinking are clearly vital; they involve cognitive skills at altogether new levels of generality and abstraction compared to those commanded by the pre-school child. With these basic skills goes assimilation of much factual information about the world.

The second main component is what may broadly be called a "moral" one. In earlier generations of schooling this was known as "deportment." Somewhat more generally it might be called responsible citizenship in the school community. Such things as respect for the teacher, consideration and co-operativeness in relation to fellow-pupils, and good "work-habits" are the fundamentals, leading on to capacity for "leadership" and "initiative."

The striking fact about this achievement content is that in the elementary grades these two primary components are not clearly differentiated from each other. Rather, the pupil is evaluated in diffusely general terms; a *good* pupil is defined in terms of a fusion of the cognitive and the moral components, in which varying weight is given to one or the other. Broadly speaking, then, we may say that the "high achievers" of the elementary school are both the "bright" pupils, who catch on easily to their more strictly intellectual tasks, and the more "responsible" pupils, who "behave well" and on whom the teacher can "count" in her difficult problems of managing the class. One indication that this is the case is the fact that in elementary school the purely intellectual tasks are relatively easy for the pupil of high intellectual ability. In many such cases, it can be presumed that the primary challenge to the pupil is not to his intellectual, but to his "moral," capacities. On the whole, the progressive movement seems to have leaned in the direction of giving enhanced emphasis to this component, suggesting that of the two, it has tended to become the more problematical.[7]

The essential point, then, seems to be that the elementary school, regarded in the light of its socialization function, is an agency which differentiates the school class broadly along a single continuum of achievement, the content of which is relative excellence in living up to the expectations imposed by the teacher as an agent of the adult society. The criteria of this achievement are, generally speaking, undifferentiated into the cognitive or technical component and the moral or "social" component. But with respect to its bearing on societal values, it is broadly a differentiation of *levels* of capacity to act in accord with these values. Though the relation is far from neatly uniform, this differentiation underlies the processes of selection for levels of status and role in the adult society.

Next, a few words should be said about the out-of-school context in which this process goes on. Besides the school class, there are clearly two primary social structures in which the child participates: the family and the child's informal "peer group."

FAMILY AND PEER GROUP IN RELATION TO THE SCHOOL CLASS

The school age child, of course, continues to live in the parental household and to be highly dependent, emotionally as well as instrumentally, on his parents. But he is now spending several hours a day away from home, subject to a discipline and a reward system which are essentially independent of that administered by the parents. Moreover, the range of this independence gradually increases. As he grows older, he is permitted to range further territorially with neither parental nor school supervision, and to do an increasing range of things. He often gets an allowance for personal spending and begins to earn some money of his own. Generally, however, the emotional problem of dependence-independence continues to be a very salient one through this period, frequently with manifestations by the child of compulsive independence.

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[7] This account of the two components of elementary school achievement and their relation summarizes impressions gained from the literature, rather than being based on the opinions of particular authorities. I have the impression that achievement in this sense corresponds closely to what is meant by the term as used by McClelland and his associates. Cf. D. C. McClelland *et al.*, *The Achievement Motive* (New York: Appleton-Century-Crofts, Inc., 1953).

Concomitantly with this, the area for association with age-peers without detailed adult supervision expands. These associations are tied to the family, on the one hand, in that the home and yards of children who are neighbors and the adjacent streets serve as locations for their activities; and to the school, on the other hand, in that play periods and going to and from school provide occasions for informal association, even though organized extracurricular activities are introduced only later. Ways of bringing some of this activity under another sort of adult supervision are found in such organizations as the boy and girl scouts.

Two sociological characteristics of peer groups at this age are particularly striking. One is the fluidity of their boundaries, with individual children drifting into and out of associations. This element of "voluntary association" contrasts strikingly with the child's ascribed membership in the family and the school class, over which he has no control. The second characteristic is the peer group's sharp segregation by sex. To a striking degree this is enforced by the children themselves rather than by adults.

The psychological functions of peer association are suggested by these two characteristics. On the one hand, the peer group may be regarded as a field for the exercise of independence from adult control; hence it is not surprising that it is often a focus of behavior which goes beyond independence from adults to the range of adult-*disapproved* behavior; when this happens, it is the seed bed from which the extremists go over into delinquency. But another very important function is to provide the child a source of non-adult approval and acceptance. These depend on "technical" and "moral" criteria as diffuse as those required in the school situation. On the one hand, the peer group is a field for acquiring and displaying various types of "prowess"; for boys this is especially the physical prowess which may later ripen into athletic achievement. On the other hand, it is a matter of gaining acceptance from desirable peers as "belonging" in the group, which later ripens into the conception of the popular teen-ager, the "right guy." Thus the adult parents are augmented by age-peers as a source of rewards for performance and of security in acceptance.

The importance of the peer group for socialization in our type of society should be clear. The motivational foundations of character are inevitably first laid down through identification with parents, who are generation-superiors, and the generation difference is a type example of a hierarchical status difference. But an immense part of the individual's adult role performance will have to be in association with status-equals or near-equals. In this situation it is important to have a reorganization of the motivational structure so that the original dominance of the hierarchical axis is modified to strengthen the egalitarian components. The peer group plays a prominent part in this process.

Sex segregation of latency period peer groups may be regarded as a process of reinforcement of sex-role identification. Through intensive association with sex-peers and involvement in sex-typed activities, they strongly reinforce belongingness with other members of the same sex and contrast with the opposite sex. This is the more important because in the coeducational school a set of forces operates which specifically plays down sex-role differentiation.

It is notable that the latency period sex-role pattern, instead of institutionalizing relations to members of the opposite sex, is characterized by an avoidance of such relations, which only in adolescence gives way to dating. This avoidance is clearly associated with the process of reorganization of the erotic components of motivational structure. The pre-oedipal objects of erotic attachment were both intra-familial and generation-superior. In both respects there must be a fundamental shift by the time the child reaches adulthood. I would suggest that one of the main functions of the avoidance pattern is to help cope with the psychological difficulty of overcoming the earlier incestuous attachments, and hence to prepare the child for assuming an attachment to an age-mate of opposite sex later.

Seen in this perspective, the socialization function of the school class assumes a particular significance. The socialization functions of the family by this time are relatively residual, though their importance should not be underestimated. But the school remains adult-controlled and, moreover, induces basically the same kind of identification as was induced by the family in the child's pre-oedipal stage. This is to say that the learning of achievement-motivation is, psychologically speaking, a process of identification with the teacher, of doing well in school in order to please the teacher (often backed by the parents) in the same sense in which a pre-oedipal child learns new skills in order to please his mother.

In this connection I maintain that what is internalized through the process of identification is a reciprocal pattern of role-relationships.[8] Unless there is a drastic failure of internalization altogether, not just one, but both sides of the interaction will be internalized. There will, however, be an emphasis on one or the other, so that some children will more nearly identify with the socializing agent, and others will more nearly identify with the opposite role. Thus, in the pre-oedipal stage, the "independent" child has identified more with the parent, and the "dependent" one with the child-role vis-à-vis the parent.

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[8] On the identification process in the family see my paper, "Social Structure and the Development of Personality," *Psychiatry*, XXI (November, 1958), pp. 321-40.

In school the teacher is institutionally defined as superior to any pupil in knowledge of curriculum subject-matter and in responsibility as a good citizen of the school. In so far as the school class tends to be bifurcated (and of course the dichotomization is far from absolute), it will broadly be on the basis, on the one hand, of identification with the teacher, or acceptance of her role as a model; and, on the other hand, of identification with the pupil peer group. This bifurcation of the class on the basis of identification with teacher or with peer group so strikingly corresponds with the bifurcation into college-goers and non-college-goers that it would be hard to avoid the hypothesis that this structural dichotomization in the school system is the primary source of the selective dichotomization. Of course in detail the relationship is blurred, but certainly not more so than in a great many other fields of comparable analytical complexity.

These considerations suggest an interpretation of some features of the elementary teacher role in American society. The first major step in socialization, beyond that in the family, takes place in the elementary school, so it seems reasonable to expect that the teacher-figure should be characterized by a combination of similarities to and differences from parental figures. The teacher, then, is an adult, characterized by the generalized superiority, which a parent also has, of adult status relative to children. She is not, however, ascriptively related to her pupils, but is performing an occupational role—a role, however, in which the recipients of her services are tightly bound in solidarity to her and to each other. Furthermore, compared to a parent's, her responsibility to them is much more universalistic, this being reinforced, as we saw, by the size of the class; it is also much more oriented to performance rather than to solicitude for the emotional "needs" of the children. She is not entitled to suppress the distinction between high and low achievers, just because not being able to be included among the high group would be too hard on little Johnny—however much tendencies in this direction appear as deviant patterns. A mother, on the other hand, must give *first* priority to the needs of her child, regardless of his capacities to achieve.

It is also significant for the parallel of the elementary school class with the family that the teacher is normally a woman. As background it should be noted that in most European systems until recently, and often today in our private parochial and non-sectarian schools, the sexes have been segregated and each sex group has been taught by teachers of their own sex. Given coeducation, however, the woman teacher represents continuity with the role of the mother. Precisely the lack of differentiation in the elementary school "curriculum" between the components of subject-matter competence and social responsibility fits in with the greater diffuseness of the feminine role.

But at the same time, it is essential that the teacher is not a mother to her pupils, but must insist on universalistic norms and the differential reward of achievement. Above all she must be the agent of bringing about and legitimizing a differentiation of the school class on an achievement axis. This aspect of her role is furthered by the fact that in American society the feminine role is less confined to the familial context than in most other societies, but joins the masculine in occupational and associational concerns, though still with a greater relative emphasis on the family. Through identification with their teacher, children of both sexes learn that the category "woman" is not co-extensive with "mother" (and future wife), but that the feminine role-personality is more complex than that.

In this connection it may well be that there is a relation to the once-controversial issue of the marriage of women teachers. If the differentiation between what may be called the maternal and the occupational components of the feminine role is incomplete and insecure, confusion between them may be avoided by insuring that both are not performed by the same persons. The "old maid" teacher of American tradition may thus be thought of as having renounced the maternal role in favor of the occupational.[9] Recently, however, the highly affective concern over the issue of married women's teaching has conspicuously abated, and their actual participation has greatly increased. It may be suggested that this change is associated with a change in the feminine role, the most conspicuous feature of which is the general social sanctioning of participation of women in the labor force, not only prior to marriage, but also after marriage. This I should interpret as a process of structural differentiation in that the same category of persons is permitted and even expected to engage in a more complex set of role-functions than before.

The process of identification with the teacher which has been postulated here is furthered by the fact that in the elementary grades the child typically has one teacher, just as in the pre-oedipal period he had one parent, the mother, who was the focus of his object-relations. The continuity between the two phases is also favored by the fact that the teacher, like the mother,

[9] It is worth noting that the Catholic parochial school system is in line with the more general older American tradition, in that the typical teacher is a nun. The only difference in this respect is the sharp religious symbolization of the difference between mother and teacher.

is a woman. But, if she acted only like a mother, there would be no genuine reorganization of the pupil's personality system. This reorganization is furthered by the features of the teacher role which differentiate it from the maternal. One further point is that while a child has one main teacher in each grade, he will usually have a new teacher when he progresses to the next higher grade. He is thus accustomed to the fact that teachers are, unlike mothers, "interchangeable" in a certain sense. The school year is long enough to form an important relationship to a particular teacher, but not long enough for a highly particularistic attachment to crystallize. More than in the parent-child relationship, in school the child must internalize his relation to the teacher's *role* rather than her particular personality; this is a major step in the internalization of universalistic patterns.

SOCIALIZATION AND SELECTION IN THE ELEMENTARY SCHOOL

To conclude this discussion of the elementary school class, something should be said about the fundamental conditions underlying the process which is, as we have seen, simultaneously (1) an emancipation of the child from primary emotional attachment to his family, (2) an internalization of a level of societal values and norms that is a step higher than those he can learn in his family alone, (3) a differentiation of the school class in terms both of actual achievement and of differential *valuation* of achievement, and (4) from society's point of view, a selection and allocation of its human resources relative to the adult role system.[10]

Probably the most fundamental condition underlying this process is the sharing of common values by the two adult agencies involved—the family and the school. In this case the core is the shared valuation of *achievement*. It includes, above all, recognition that it is fair to give differential rewards for different levels of achievement, so long as there has been fair access to opportunity, and fair that these rewards lead on to higher-order opportunities for the successful. There is thus a basic sense in which the elementary school class is an embodiment of the fundamental American value of equality of opportunity, in that it places value *both* on initial equality and on differential achievement.

As a second condition, however, the rigor of this valuational pattern must be tempered by allowance for the difficulties and needs of the young child. Here the quasi-motherliness of the woman teacher plays an important part. Through her the school system, assisted by other agencies, attempts to minimize the insecurity resulting from the pressures to learn, by providing a certain amount of emotional support defined in terms of what is due to a child of a given age level. In this respect, however, the role of the school is relatively small. The underlying foundation of support is given in the home, and as we have seen, an important supplement to it can be provided by the informal peer associations of the child. It may be suggested that the development of extreme patterns of alienation from the school is often related to inadequate support in these respects.

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[10] The following summary is adapted from T. Parsons, R. F. Bales *et al.*, *Family, Socialization and Interaction Process* (Glencoe, Ill.: The Free Press, 1955), esp. chap. iv.

Third, there must be a process of selective rewarding of valued performance. Here the teacher is clearly the primary agent, though the more progressive modes of education attempt to enlist classmates more systematically than in the traditional pattern. This is the process that is the direct source of intra-class differentiation along the achievement axis.

The final condition is that this initial differentiation tends to bring about a status system in the class, in which not only the immediate results of school work, but a whole series of influences, converge to consolidate different expectations which may be thought of as the children's "levels of aspiration." Generally some differentiation of friendship groups along this line occurs, though it is important that it is by no means complete, and that children are sensitive to the attitudes not only of their own friends, but of others.

Within this general discussion of processes and conditions, it is important to distinguish, as I have attempted to do all along, the socialization of the individual from the selective allocation of contingents to future roles. For the individual, the old familial identification is broken up (the family of orientation becomes, in Freudian terms, a "lost object") and a new identification is gradually built up, providing the first-order structure of the child's identity apart from his originally ascribed identity as son or daughter of the "Joneses." He both transcends his familial identification in favor of a more independent one and comes to occupy a differentiated status within the new system. His personal status is inevitably a direct function of the position he achieves, primarily in the formal school class and secondarily in the informal peer group structure. In spite of the sense in which achievement-ranking takes place along a continuum, I have put forward reasons to suggest that, with respect to this status, there is an important differentiation into two broad, relatively distinct levels, and that his position on one or the other enters into the individual's definition of his own identity. To an important degree this process of differentiation is independent of the socio-economic status of his family in the community, which to the child is a prior ascribed status.

When we look at the same system as a selective mechanism from the societal point of view, some further considerations become important. First, it may be noted that the valuation of achievement and its sharing by family and school not only provides the appropriate values for internalization by individuals, but also performs a crucial integrative function for the system. Differentiation of the class along the achievement axis is inevitably a source of strain, because it confers higher rewards and privileges on one contingent than on another within the same system. This common valuation helps make possible the acceptance of the crucial differentiation, especially by the losers in the competition. Here it is an essential point that this *common* value on achievement is shared by units with different statuses in the system. It cuts across the differentiation of families by socioeconomic status. It is necessary that there be realistic opportunity and that the teacher can be relied on to implement it by being "fair" and rewarding achievement by whoever shows capacity for it. The fact is crucial that the distribution of abilities, though correlated with family status, clearly does not coincide with it. There can then be a genuine selective process within a set of "rules of the game."

This commitment to common values is not, however, the sole integrative mechanism counteracting the strain imposed by differentiation. Not only does the individual pupil enjoy familial support, but teachers also like and indeed "respect" pupils on bases independent of achievement-status, and peer-group friendship lines, though correlated with position on the achievement scale, again by no means coincide with it, but cross-cut it. Thus there are cross-cutting lines of solidarity which mitigate the strains generated by rewarding achievement differentially.[11]

It is only *within* this framework of institutionalized solidarity that the crucial selective process goes on through selective rewarding and the consolidation of its results into a status-differentiation within the school class. We have called special attention to the impact of the selective process on the children of relatively high ability but low family status. Precisely in this group, but pervading school classes generally, is another parallel to what was found in the studies of voting behavior.[12] In the voting studies it was found that the "shifters"—those voters who were transferring their allegiance from one major party to the other—tended, on the one hand, to be the "cross-pressured" people, who had multiple status characteristics and group allegiances which predisposed them simultaneously to vote in opposite directions. The analogy in the school class is clearly to the children for whom ability and family status do not coincide. On the other hand, it was precisely in this group of cross-pressured voters that political "indifference" was most conspicuous. Non-voting was particularly prevalent in this group, as was a generally cool emotional tone toward a campaign. The suggestion is that some of the pupil "indifference" to school performance may have a similar origin. This is clearly a complex phenomenon and cannot be further analyzed here. But rather than suggesting, as is usual on common sense grounds, that indifference to school work represents an "alienation" from cultural and intellectual values, I would suggest exactly the opposite: that an important component of such indifference, including in extreme cases overt revolt against school discipline, is connected with the fact that the stakes, as in politics, are very high indeed. Those pupils who are exposed to contradictory pressures are likely to be ambivalent; at the same time, the personal stakes for them are higher than for the others, because what happens in school may make much more of a difference for their futures than for the others, in whom ability and family status point to the same expectations for the future. In particular for the upwardly mobile pupils, too much emphasis on school success would pointedly suggest "burning their bridges" of association with their families and status peers. This phenomenon seems to operate even in elementary school, although it grows somewhat more conspicuous later. In general I think that an important part of the anti-intellectualism in American youth culture stems from the *importance* of the selective process through the educational system rather than the opposite.

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[11] In this, as in several other respects, there is a parallel to other important allocative processes in the society. A striking example is the voting process by which political support is allocated between party candidates. Here, the strain arises from the fact that one candidate and his party will come to enjoy all the perquisites—above all the power—of office, while the other will be excluded for the time being from these. This strain is mitigated, on the one hand, by the common commitment to constitutional procedure, and, on the other hand, by the fact that the nonpolitical bases of social solidarity, which figure so prominently as determinants of voting behavior, still cut across party lines. The average person is, in various of his roles, associated with people whose political preference is different from his own; he therefore could not regard the opposite party as composed of unmitigated scoundrels without introducing a rift within the groups to which he is attached. This feature of the electorate's structure is brought out strongly in B. R. Berelson, P. F. Lazarsfeld and W. N. McPhee, *Voting* (Chicago: University of Chicago Press, 1954). The conceptual analysis of it is developed in my own paper, "'Voting' and the Equilibrium of the American Political System" in E. Burdick and A. J. Brodbeck (eds.), *American Voting Behavior* (Glencoe, Ill.: The Free Press, 1959).

[12] *Ibid.*

One further major point should be made in this analysis. As we have noted, the general trend of American society has been toward a rapid upgrading in the educational status of the population. This means that, relative to past expectations, with each generation there is increased pressure to educational achievement, often associated with parents' occupational ambitions for their children.[13] To a sociologist this is a more or less classical situation of anomic strain, and the youth-culture ideology which plays down intellectual interests and school performance seems to fit in this context. The orientation of the youth culture is, in the nature of the case, ambivalent, but for the reasons suggested, the anti-intellectual side of the ambivalence tends to be overtly stressed. One of the reasons for the dominance of the anti-school side of the ideology is that it provides a means of protest against adults, who are at the opposite pole in the socialization situation. In certain respects one would expect that the trend toward greater emphasis on independence, which we have associated with progressive education, would accentuate the strain in this area and hence the tendency to decry adult expectations. The whole problem should be subjected to a thorough analysis in the light of what we know about ideologies more generally.

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[13] J. A. Kahl, "Educational and Occupational Aspirations of 'Common Man' Boys," *Harvard Educational Review*, XXIII (Summer, 1953), pp. 186-203.

The same general considerations are relevant to the much-discussed problem of juvenile delinquency. Both the general upgrading process and the pressure to enhanced independence should be expected to increase strain on the lower, most marginal groups. The analysis of this paper has been concerned with the line between college and non-college contingents; there is, however, another line between those who achieve solid non-college educational status and those for whom adaptation to educational expectations at *any* level is difficult. As the acceptable minimum of educational qualification rises, persons near and below the margin will tend to be pushed into an attitude of repudiation of these expectations. Truancy and delinquency are ways of expresing this repudiation. Thus the very *improvement* of educational standards in the society at large may well be a major factor in the failure of the educational process for a growing number at the lower end of the status and ability distribution. It should therefore not be too easily assumed that delinquency is a symptom of a *general* failure of the educational process.

DIFFERENTIATION AND SELECTION IN THE SECONDARY SCHOOL

It will not be possible to discuss the secondary school phase of education in nearly as much detail as has been done for the elementary school phase, but it is worthwhile to sketch its main outline in order to place the above analysis in a wider context. Very broadly we may say that the elementary school phase is concerned with the internalization in children of motivation to achievement, and the selection of persons on the basis of differential capacity for achievement. The focus is on the *level* of capacity. In the secondary school phase, on the other hand, the focus is on the differentiation of *qualitative types* of achievement. As in the elementary school, this differentiation cross-cuts sex role. I should also maintain that it cross-cuts the levels of achievement which have been differentiated out in the elementary phase.

In approaching the question of the types of capacity differentiated, it should be kept in mind that secondary school is the principal springboard from which lower-status persons will enter the labor force, whereas those achieving higher status will continue their formal education in college, and some of them beyond. Hence for the lower-status pupils the important line of differentiation should be the one which will lead into broadly different categories of jobs; for the higher-status pupils the differentiation will lead to broadly different roles in college.

My suggestion is that this differentiation separates those two components of achievement which we labelled "cognitive" and "moral" in discussing the elementary phase. Those relatively high in "cognitive" achievement will fit better in specific-function, more or less technical roles; those relatively high in "moral" achievement will tend toward diffuser, more "socially" or "humanly" oriented roles. In jobs not requiring college training, the one category may be thought of as comprising the more impersonal and technical occupations, such as "operatives," mechanics, or clerical workers; the other, as occupations where "human relations" are prominent, such as salesmen and agents of various sorts. At the college level, the differentiation certainly relates to concern, on the one hand, with the specifically intellectual curricular work of college and, on the other hand, with various types of diffuser responsibility in human relations, such as leadership roles in student government and extracurricular activities. Again, candidates for post-graduate professional training will probably be drawn mainly from the first of these two groups.

In the structure of the school, there appears to be a gradual transition from the earliest grades through high school, with the changes timed differently in different school systems. The structure emphasized in the first part of this discussion is most clearly marked in the first three "primary" grades. With progression to the higher grades, there is greater frequency of plural teachers, though very generally still a single main teacher. In the sixth grade and sometimes in the fifth, a man as main teacher, though uncommon, is by no means unheard of. With junior high school, however, the shift of pattern becomes more marked, and still more in senior high.

By that time the pupil has several different teachers of both sexes[14] teaching him different subjects, which are more or less formally organized into different courses—college preparatory and others. Furthermore, with the choice of "elective" subjects, the members of the class in one subject no longer need be exactly the same as in another, so the pupil is much more systematically exposed to association with different people, both adults and age-peers, in different contexts. Moreover, the school he attends is likely to be substantially larger than was his elementary school, and to draw from a wider geographical area. Hence the child is exposed to a wider range of statuses than before, being thrown in with more age-peers whom he does not encounter in his neighborhood; it is less likely that his parents will know the parents of any given child with whom he associates. It is thus my impression that the transitions to junior high and senior high school are apt to mean a considerable reshuffling of friendships. Another conspicuous difference between the elementary and secondary levels is the great increase in high school of organized extracurricular activities. Now, for the first time, organized athletics become important, as do a variety of clubs and associations which are school-sponsored and supervised to varying degrees.

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[14] Men make up about half (49 per cent) of the public secondary school instructional staff. *Biennial Survey of Education in the United States, 1954-56, op. cit.*, chap. ii, p. 7.

Two particularly important shifts in the patterning of youth culture occur in this period. One, of course, is the emergence of more positive cross-sex relationships outside the classroom, through dances, dating, and the like. The other is the much sharper prestige-stratification of informal peer groupings, with indeed an element of snobbery which often exceeds that of the adult community in which the school exists.[15] Here it is important that though there is a broad correspondence between the prestige of friendship groups and the family status of their members, this, like the achievement order of the elementary school, is by no means a simple "mirroring" of the community stratification scale, for a considerable number of lower-status children get accepted into groups including members with higher family status than themselves. This stratified youth system operates as a genuine assortative mechanism; it does not simply reinforce ascribed status.

The prominence of this youth culture in the American secondary school is, in comparison with other societies, one of the hallmarks of the American educational system; it is much less prominent in most European systems. It may be said to constitute a kind of structural fusion between the school class and the peer-group structure of the elementary period. It seems clear that what I have called the "human relations" oriented contingent of the secondary school pupils are more active and prominent in extracurricular activities, and that this is one of the main foci of their differentiation from the more impersonally- and technically-oriented contingent. The personal qualities figuring most prominently in the human relations contingent can perhaps be summed up as the qualities that make for "popularity." I suggest that, from the point of view of the secondary school's selective function, the youth culture helps to differentiate between types of personalities which will, by and large, play different kinds of roles as adults.

The stratification of youth groups has, as noted, a selective function; it is a bridge between the achievement order and the adult stratification system of the community. But it also has another function. It is a focus of prestige which exists along side of, and is to a degree independent of, the achievement order focussing on school work as such. The attainment of prestige in the informal youth group is itself a form of valued achievement. Hence, among those individuals destined for higher status in society, one can discern two broad types: those whose school work is more or less outstanding and whose informal prestige is relatively satisfactory; and vice versa, those whose informal prestige is outstanding, and school performance satisfactory.

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[15] See, for instance, C. W. Gordon, *The Social System of the High School: A Study in the Sociology of Adolescence* (Glencoe, Ill.: The Free Press, 1957).

Falling below certain minima in either respect would jeopardize the child's claim to belong in the upper group.[10] It is an important point here that those clearly headed for college belong to peer groups which, while often depreciative of intensive concern with studies, also take for granted and reinforce a level of scholastic attainment which is necessary for admission to a good college. Pressure will be put on the individual who tends to fall below such a standard.

In discussing the elementary school level it will be remembered that we emphasized that the peer group served as an object of emotional dependency displaced from the family. In relation to the pressure for school achievement, therefore, it served at least partially as an expression of the lower-order motivational system *out* of which the child was in process of being socialized. On its own level, similar things can be said of the adolescent youth culture; it is in part an expression of regressive motivations. This is true of the emphasis on athletics despite its lack of relevance to adult roles, of the "homosexual" undertones of much intensive same-sex friendship, and of a certain "irresponsibility" in attitudes toward the opposite sex—e.g., the exploitative element in the attitudes of boys toward girls. This, however, is by no means the whole story. The youth culture is also a field for practicing the assumption of higher-order responsibilities, for conducting delicate human relations without immediate supervision and learning to accept the consequences. In this connection it is clearly of particular importance to the contingent we have spoken of as specializing in "human relations."

We can, perhaps, distinguish three different levels of crystallization of these youth-culture patterns. The middle one is that which may be considered age-appropriate without clear status-differentiation. The two keynotes here seem to be "being a good fellow" in the sense of general friendliness and being ready to take responsibility in informal social situations where something needs to be done. Above this, we may speak of the higher level of "outstanding" popularity and qualities of "leadership" of the person who is turned to where unusual responsibilities are required. And below the middle level are the youth patterns bordering on delinquency, withdrawal, and generally unacceptable behavior. Only this last level is clearly "regressive" relative to expectations of appropriate behavior for the age-grade. In judging these three levels, however, allowance should be made for a good many nuances. Most adolescents do a certain amount of experimenting with the borderline of the unacceptable patterns; that they should do so is to be expected in view of the pressure toward independence from adults, and of the "collusion" which can be expected in the reciprocal stimulation of age-peers. The question is whether this regressive behavior comes to be confirmed into a major pattern for the personality as a whole. Seen in this perspective, it seems legitimate to maintain that the middle and the higher patterns indicated are the major ones, and that only a minority of adolescents comes to be confirmed in a truly unacceptable pattern of living. This minority may well be a relatively constant proportion of the age cohort, but apart from situations of special social disorganization, the available evidence does not suggest that it has been a progressively growing one in recent years.

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[10] J. Riley, M. Riley, and M. Moore, "Adolescent Values and the Riesman Typology" in S. M. Lipset and L. Lowenthal (eds.), *The Sociology of Culture and the Analysis of Social Character* (Glencoe, Ill.: The Free Press, to be published in 1960).

The patterning of cross-sex relations in the youth culture clearly foreshadows future marriage and family formation. That it figures so prominently in school is related to the fact that in our society the element of ascription, including direct parental influence, in the choice of a marriage partner is strongly minimized. For the girl, it has the very important significance of reminding her that her adult status is going to be very much concerned with marriage and a family. This basic expectation for the girl stands in a certain tension to the school's curricular coeducation with its relative lack of differentiation by sex. But the extent to which the feminine role in American society continues to be anchored in marriage and the family should not be allowed to obscure the importance of coeducation. In the first place, the contribution of women in various extra-familial occupations and in community affairs has been rapidly increasing, and certainly higher levels of education have served as a prerequisite to this contribution. At the same time, it is highly important that the woman's familial role should not be regarded as drastically segregated from the cultural concerns of the society as a whole. The educated woman has important functions *as wife and mother,* particularly as an influence on her children in backing the schools and impressing on them the importance of education. It is, I think, broadly true that the immediate responsibility of women for family management has been increasing, though I am very skeptical of the alleged "abdication" of the American male. But precisely in the context of women's increased family responsibility, the influence of the mother both as agent of socialization and as role model is a crucial one. This influence should be evaluated in the light of the general upgrading process. It is very doubtful whether, apart from any other considerations, the motivational prerequisites of the general process could be sustained without sufficiently high education of the women who, as mothers, influence their children.

CONCLUSION

With the general cultural upgrading process in American society which has been going on for more than a century, the educational system has come to play an increasingly vital role. That this should be the case is, in my opinion, a consequence of the general trend to structural differentiation in the society. Relatively speaking, the school is a specialized agency. That it should increasingly have become the principal channel of selection as well as agency of socialization is in line with what one would expect in an increasingly differentiated and progressively more upgraded society. The legend of the "self-made man" has an element of nostalgic romanticism and is destined to become increasingly mythical, if by it is meant not just mobility from humble origins to high status, which does indeed continue to occur, but that the high status was attained through the "school of hard knocks" without the aid of formal education.

The structure of the public school system and the analysis of the ways in which it contributes both to the socialization of individuals and to their allocation to roles in society is, I feel, of vital concern to all students of American society. Notwithstanding the variegated elements in the situation, I think it has been possible to sketch out a few major structural patterns of the public school system and at least to suggest some ways in which they serve these important functions. What could be presented in this paper is the merest outline of such an analysis. It is, however, hoped that it has been carried far enough to suggest a field of vital mutual interest for social scientists on the one hand and those concerned with the actual operation of the schools on the other.

Stress and Strain in Professional Education

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In any proud trade, profession or branch of learning, with a sense of its historical, moral, and intellectual or technical community, the ideal teaching situation might be thought of as that in which teacher and pupil see each other as but phases of one self. In the pupil the teacher sees himself as a youth learning from his own beloved and exigent master. If his is a profession which consciously strives to conquer new problems, as does modern medicine, the master may see in his pupil a younger colleague who will better his instruction, a successor who will, in the very measure in which he fulfills the demands and hopes of the master, make him technically obsolete. In this ideal situation, the pupil reciprocates his teacher's view of things; he may imagine himself in the future playing the role the teacher now plays. The two complementary roles are deeply satisfying, and very demanding. The teacher, proud that he has chosen a worthy pupil and has in turn been chosen as a worthy master, tempts fate and courts glory by goading the student into outdoing both their selves.

I present this as a model, not as the ordinary state of things. It is not the only model of deeply satisfying teaching and learning. A teacher of gifted and eager undergraduates may identify himself closely with them without thinking of them in the least as future professional scholars. There is a certain colleagueship of amateurs that can be as close as that of professionals. No doubt teachers vary a great deal in their need to think of their students as future colleagues. We do not know much about the relative

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value to academic and professional people of their various activities; teaching, practice, and research. However, it is clear that greater prestige is accorded those who initiate future colleagues into the higher degrees than to those who do other kinds of teaching. It may also be that much of the effort to develop graduate schools where none grew before springs from the desire of teachers to share the supposed glory and prestige of picking and training professionals in their field. It would be interesting to learn just how much of the research done by American academic people is simply a means to this end, not an *agendum* to be got on with, but a *curriculum,* which runs round and round. It may turn out that the most satisfying kinds of teaching are those in which one sees good undergraduates awaken to a new mood, point of view or style of reasoning, and those in which one sees promising apprentices through the last rite of passage into full colleagueship.

Some students, after exciting undergraduate work with inspiring teachers, find the first year or so of graduate or professional school dull, detailed, uninspired, and irrelevant to their aims, as they conceive those aims. Some may again, in later phases, find close identification with a teacher, and approach the model which I set up in the first paragraph. It may be that neither teacher nor pupil identifies himself closely with the other in the first ordeals of graduate or professional work. Some teachers and some students undoubtedly never identify themselves with each other. It may or may not make any great difference in their accomplishments whether they do or not, although I rather suspect it does make a difference of some kind and in some direction.

Identification of students and staff with each was one of the matters on which my colleagues and I collected data in a medical school which we have been studying.[1] The students and staff do not see the situation as that which I set up. Perhaps some of the students will later, as residents, find such a relation in close work with an admired specialist. We do not know.

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[1] My colleagues in the study are Howard S. Becker, Blanche Geer, and Anselm Strauss. The school is that of the state university in a midwestern state in which there is no other medical school and in which there is no college or university of standing approaching that of the state university. The medical school was drastically reorganized several years ago under a determined and progressive leadership. The students are predominantly natives of the state. Great emphasis is put upon a program of training general practitioners.

Extensive observations were made of all activities of the school: lectures, laboratory work, clinical rounds, ward duty in the school's own and other hospitals to which students are sent, etc. Informal, free, and somewhat guided conversations of the students were also observed. The observations have been coded in a variety of ways, and analyses made. About half of the full-time members of the staff were interviewed. Observations were also made of the activities of residents. Most of the data presented here are from a series of questionnaire interviews made toward the end of the study for the purpose of checking a number of findings of the analyses of other data. A random sample of 64 students, stratified by year (class) were interviewed. The interviews were recorded on tape. Two interviews were not completed.

The teachers, for their part, do not see many of the students as potential close apprentices and successors in their own kind of work.

Medical students are, it must be said, students who are graduates, but not graduate students. They are taking a second four-year undergraduate course. The second, however, seems to them a course for adults, not adolescents. They expect in this course to become physicians able to enter the practice of one of the most crucial of the human arts, that of caring for the sick.

The staff which teaches them consists of physicians, of scientists, of men who are both, and of a few people who are neither (nurses, physiotherapists, etc.). They meet the scientists first, and come closer and closer to physicians as they proceed. All of the teachers of medicine are specialists. In spite of the attempt to idealize general practice by picking a General Practitioner of the Year for special attention at conventions of the American Medical Association and of various devices to direct young men into general practice, there are next to no general practitioners teaching in medical schools.

Of a sample of students, we asked the following questions which bear on identification with their teachers:[2]

1) Is there any man on the staff here who is just the kind of doctor you'd like to be?
2) Is there any man here who practices just the kind of medicine you'd like to practice?
3) Did you ever consider going into research?
4) Would you like to be associated with a teaching hospital?

TABLE 1

Distribution of Students' Responses to the Question: Is there any man on the staff here who is just the kind of doctor you'd like to be?
(N=55)

Response	*Number of students*
No, without comment	11
No, with comment	8
No, but named people not on the staff who are close to what they would like to be	11
No, but named one or more members of staff as having qualities they would like to have or as approaching the kind of doctor they would like to be	25
Yes	0
Total	55

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[2] The analyses are based on tape-recordings of the interviews. The answers to the first two questions are so nearly identical, that we give the analysis only of the first one.

The first question asks directly for such identification. The third and fourth are less direct, but the reference is clear, for all of the teachers are associated with a teaching hospital and nearly all are engaged in research. The question asked them, in effect, about their expected or hoped-for style of career; thus, about their future selves.

No student answered "Yes" or "Yes, but . . ." when asked if there were a member of the staff who is just the kind of doctor he would like to be. The qualifying adverb "just" may have made it unlikely that any student, except one very much under the spell of some teacher, would say "Yes." No such disciple turned up among the sampled students; nor is there any case of discipleship apparent in our extensive field notes. Yet the wording of the question did not deter quite a number of the students from naming someone other than their teachers in a pretty unqualified way. When they named members of the staff, it was with much stronger reservation. Those who said "No," named no one but made comments, express respect with a certain distance. It is as if they were talking of a breed of man different from those with whom they closely identify themselves.

Although not asked to name any physician not on the staff of the medical school, eleven students did so. General practitioners are clearly the favorites, with a couple of surgeons. Each of the eleven who volunteered the name of a doctor outside the staff named but one, and did it, nearly always, with warmth and finality. In three cases, they mention relatives; in other cases, the mood is that of talking about beloved uncles, whose very quirks are affectionately dwelt upon.

The twenty-five who did, after a disavowal, name members of the teach-

TABLE 1A

Distribution of the "No, with comment" Responses
(N=8)

Comment	*Number of students who made the comment*
Haven't had much contact yet	3
They are well-educated, have nice personalities, nice people to know	2
Are good doctors, many fine physicians, intelligent, practice good medicine, I admire them, respect them	5
Aren't in the type of practice I intend to be in, don't have the same problems I will have, they are specialists, I want to be composite	4
Total	14[a]

[a] Some students made more than one comment.

TABLE 1B

Distribution of the "No, but named people not on the staff . . ." Responses
(N=11)

Kind of physician	*Number of students naming each kind*	
General practitioners, of whom		7
Relatives (father, uncle, aunt)	3	
"The doctor back home"	2	
My preceptor[a]	1	
"A man I know in a small town, who combines general practice with some surgery"	1	
Surgeons, thus:		2
"One of the best surgeons in T., a friend of my family. People like him and have confidence in him."	1	
"A thoracic surgeon I worked for in Chicago; famous, but humble and helpful. He was willing to explain anything to me."	1	
Kind of practice not specified:		2
"A man in downtown Kansas City whom I knew when I was in college."	1	
One man merely named.	1	
Total		11

[a] Each fourth-year student spends several weeks living and working with a small-town general practitioner. That is his preceptor.

ing staff were inclined not to mention the whole man, but some admirable trait. Altogether they mentioned seventeen of approximately 120 full-time members of the staff, and two of the more than 200 part-time teachers.[3]

Forty per cent of their mentions go to two men; over 60 per cent to four. The two men chosen so much more often than others ran nip-and-tuck; one was chosen eleven times; the other ten. But Dr. A, the most chosen, was chosen in a different way. Four students named him, and no other; those who did so, named him with something like the definiteness with which doctors outside the staff were named. He was thought close to the ideal physician. The second most chosen, Dr. B (and the difference between the number of choices given the two is of no significance) is, however, named only once by himself. He requires a bit of complementing, or perhaps an antidote; he is

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[3] It is fairly evident that the students considered that the question referred primarily to the full-time staff. It should be noted that students see a great deal more of full-time than of part-time people, more of people in some departments than of those in others, and more of some individuals than others. The number of people on the staff varies slightly from time to time. Most of the part-time staff are physicians in hospitals to which students are sent for clinical experience.

TABLE 1C

Distribution of Student Mentions of Staff Members
(N=25)

Individual and specialty[a]	*Number of mentions*[b]	*Accumulative total of mentions* *Number*	*Per cent*
Dr. A (medicine)	11	11	21
Dr. B (medicine)	10	21	40
Dr. C (surgery)	8	29	60
Dr. D (pathology)	4	33	63
Dr. E (ear-nose-throat)	2	35	67
Dr. F (medicine)	2	37	71
Dr. G (medicine)	2	39	75
Dr. H (medicine)	2	41	79
		52[b]	100

[a] All are full-time staff members.

[b] There were 11 men mentioned once each. Among them are two part-time men, one in ear-nose-throat and one in obstetrics.

"idealistic," "thorough," "original," "stately," "great," and "a character."[4] Only Dr. A is talked of in about the same way as "the doctor back home," "my uncle," and "my preceptor."

If one scans the salient points of these tables along with other information on the people and the school, it is clear that these students of medicine

TABLE 1D

Distribution of Men Named and Number of Times Mentioned by Departments
(N=25)

	Number of staff full-time	*Number of men named*	*Times mentioned*
Medicine	22	7	29
Surgery	17	3	10
Pathology	15	3	6
Ear-nose-throat	2	2	3
Obstetrics-gynecology	5	2	2
Pediatrics	10	1	1
Anatomy	9	1	1
Total	80	19	52

NOTE: Departments from whom no one was mentioned: biochemistry, dermatology, microbiology, pharmacology, physiology, psychiatry, public health, radiology, opthalmology, psychology. Dermatology and psychology had no full-time members.

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[4] Two students, however, see this man as kind, human, and civilized. One should not overlook the possibility that they see deeper than others.

concentrate their mentions of men who in some way are the kinds of doctors they would like to be upon a few people, and in the department of medicine, with surgery and pathology following in that order. This means that they see themselves very much as in the heart of medicine, for these three specialties are such to the practicing physician. In a certain sense, they are not quite considered specialties; they are just the major branches dealing with diagnosis and treatment, representing a necessary minimum division of labor within the main core of medicine. Medicine is the specialty which is, in the minds of many people, closest to general practice. Although pathology is done in a laboratory, it is part of the daily work of medicine, and often done under the same pressure of time as surgery itself. There is only one mention of a branch (anatomy) that works on scientific time, where the pace is not determined by the welfare of any particular patient but by the progress of an experiment or a branch of knowledge. The essentially laboratory specialties are not mentioned.

The two men most mentioned, and all but one other of those mentioned in medicine, are natives of the region, educated there, and have had most, if not all, of their professional experience there. The two are very highly respected in the region, but are not among those of the staff best known nationally to others in their line of work. They represent to the students the core of the full-time staff who give them their main general clinical experience in the school's hospital. They with their assistants, who are also mentioned, carry a heavy share of the burden of teaching. The man who arranged their preceptorships with general practitioners is also mentioned, as is the man who organizes the out-patient clinical teaching. One might say that they appear to the students scarcely as specialists at all, but as devoted physicians, the Marthas of the medical school and hospital, practicing a high order of rather general medicine in close contact with a difficult clientele. It is perhaps not entirely by chance that they are somewhat more local in origin, experience, and reputation than many who are mentioned but once or not at all.[5] These young men, the students, seem to single out for emulation those among their teachers who come closest to the image they have of the general practitioner; when they mention other kinds of men, it is to praise thoroughness, skill or knowledge of an inspiring and impressive degree.

The answer to the other two questions confirm this finding. Sixteen of 60 students do not want to be associated with a teaching hospital; 12 of them gave reasons. They express a preference for being on their own (which implies private general practice), for small towns, and for practice of medicine rather than teaching. Of the thirty-nine who might like a teaching connection part-time, twenty-four think of it primarily as a way

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[5] Five heads of departments are named; none more than once. No deans or assistant deans were named. Let any who are tempted to accept administrative posts beware!

TABLE 2

Distribution of Students' Responses to the Question:
Would you like to be associated with a teaching hospital?
(N=60)

Response	*Number of students*
No, with or without reason	16
Yes, but only part-time	39
Yes, with possibility of full-time	5
Total	60

to keep up-to-date and be better physicians; nine think it would bring prestige and referrals or other advantages to their own practice. Nineteen think it would be a service or would give a sense of accomplishment. Only five think of teaching as a career. One of the five thinks there's no hope for him; his father is a teacher. He tried to avoid it, but feels drawn to it, even inspired by one of his teachers. The other four are lukewarm.

Only three students think of research as a full-time matter. Two of them talk as though they were fully committed to this notion of themselves, and to science as something in which they have deep interest. They are self-consciously aware that theirs is not a bent common among their fellows. What is curious, however, is that those who reject research altogether almost unanimously say that they do so because they want to work with people. Research, they say is lonely, routine, and slow. Eight say that they did not come into medicine to work with dogs, rats, mice, guinea pigs or

TABLE 3

Distribution of Students' Responses to the Question:
Would you consider (or have you ever considered) going into research?
(N=60)

Response	*Number of students*	
No, without reasons	14	
No, with reasons or comments	28	
Total no		42
Yes, for part-time or occasionally	15[a]	
Yes, definitely and as a career	3	
Total yes		18
Total		60

[a] The 15 part-time "yes" answers were rather faint; some were more no than yes.

roosters. The following statement differs from others, only in that it is a bit stronger:

> One of the reasons that I want to go into medicine is to work with people, and I can't understand Dr. Q who's been through medical school and internship and who putters all day long making new contraptions to check renal clearance on roosters. And he puts in an 8 to 5 day, but I just—it just seems wasted.

One might think that the student who made that heart-felt statement despised research. I don't think that is it. He believes it is a waste for a man who has studied medicine, and who might be a "doctor." The animals and fowls seem to symbolize a diversion to a less worthy calling of people who should have been committed to working with humans. Only one or two students said, and then as a sort of aside, that they knew of course that some research was done with people. In their talk it is not always quite clear whether the people they "work with" are their patients, or their colleagues. Laboratories are, in fact, sociable places with much talk and argument among colleagues, while the general practice of medicine is sometimes quite lonely. But the image of research as lonely and as dealing with animals, while the practice of medicine lets one "work with people" certainly prevails among these students of medicine. It is a feeling of great intensity.

We can only conclude that these medical students do not see themselves as attached to masters whose style of work, careers, and personal qualities they would like to learn, emulate, and follow. But it is not for lack of admiration. When asked how they rated their medical school, an overwhelming majority of the same students put it among the first five in the country, although with others which one would expect to see on any list of ranking schools. A few, in the course of answering the several questions we have discussed, frankly said they knew they themselves lacked the ability to follow their teachers. Occasionally a student spoke almost patronizingly of what he took to be the indifference of the faculty to money; but it was only occasionally. Finally, there is little indication that the students think that the school would be better if the teachers were men of the kind the students would like to be. There is a general feeling among students that faculty are inclined to be theoretical, rather than practical. But that attitude by no means implies that they would like general practitioners as their teachers. As a matter of fact, the teachers appear a little like the saints, who practice the virtues in a degree not quite to be expected of the common run of man; indeed, in a degree beyond that for which earthly rewards are commensurate with effort.

How is it from the side of the teachers? In a good many of our interviews with them we sensed a yearning for true apprentices, for students who take the teacher's interests as their own passions and programs of work. The case is clear with the biochemist, the physiologist, and the anatomist. These scientists live in a symbiotic relationship with the medical school. They teach students who are committed in advance to another kind of career; by furnishing necessary service to the medical school and profession, they buy their bread and get laboratories to which they can bring graduate students who may become their true apprentices. Thus was most of the scholarly and scientific research of the world subsidized until very recent times. But there is satisfaction in it for most of them. Some of them focus their investigations upon problems of medical concern and enjoy the contact with the medical world. They also take, in varying degree, pride in having a part in the education of physicians, and perhaps even in its improvement.

For the laboratory specialties of medicine itself—pharmacology, pathology, and microbiology—the case is not so clear. Some of them fear falling between two stools; they may get neither medical students nor non-medical graduate students to follow in their footsteps. Those teachers who initiate students into the practice of medicine, in the clinics and at the bedside, are, indeed, inducting their successors into the brotherhood of physicians. Yet among them the yearning for truer apprentices is no less strong than among the others, for each such teacher is deeply devoted to the advancement of skill and knowledge in his own special field. That goal depends upon recruitment of apprentices in the closer, narrower sense of pupils who seek to emulate and outdo the master. For some of these teachers, the medical student who seeks his models out in the world of general non-academic practice is more of a disappointment than to the scientist-teachers; for has not the student come one mile with him? Why not twain?[6]

In spite of the tensions and frustrations which teachers of medical students so freely express, there is a force which moves the enterprise and holds it together. All of these teachers, no matter what their specialties, are very aware of the fact that they are producing physicians who will have license to treat the sick. No teacher in our school takes his work lightly or cynically. Everyone seems to have the burden upon him to get the best out of these young men. This force is not present in all kinds of teaching. There are no doubt other kinds of integrating forces, such as the sense of participating in a great educational experiment or in a college with a tradition of excellent scholarship, or helping youngsters overcome handicaps.

Each kind of teaching also has its own measure of prestige before one or a variety of audiences; in the case of medicine, the prestige is high before the world and the medical profession, and it is strong in the academic world itself.

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[6] A fuller account of the attitudes and problems of the teachers will appear in the final report of our study of the medical school.

One might too easily assume that the way to get good teaching would be to get all pupils into the workshops of people with whom they might identify themselves—and to give all teachers pupils of whom a large proportion are their potential successors. But we do not find this the case even in a school where all students are fully committed to future membership in the profession to which most of the teachers belong. The only moral to be drawn from our case—perhaps a naive one to professional students of pedagogy—is that we should look at all teaching and learning situations to find what combinations of circumstances, of mutual or one-sided identification or lack of it, and of motives, high or low, apparently relevant or not, occur in them and with what probable effects upon the teaching and the learning.

Academic Achievement and the Structure of Competition

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IN SECONDARY EDUCATION (and to a lesser extent in lower grades), we are beset by a peculiar paradox: in our complex industrial society, there is increasingly more to learn, and formal education is ever more important in shaping one's life chances; at the same time, there is coming to be more and more an independent "society of adolescents," an adolescent culture which shows little interest in education and focuses the attention of teenagers on cars, dates, sports, popular music, and other matters just as unrelated to school. Thus while it is becoming more important that teenagers show a desire to learn, the developing adolescent culture shifts their interest further and further away from learning.

Are these conflicting tendencies "natural" ones, irreversible processes resulting from changes in society? Is the nonchalance of the adolescent culture toward scholastic matters, its irresponsibility and hedonism, simply because "teenagers are that way"? Is it something which must be accepted? If so, then the hope of developing students truly interested in learning lies in "rescuing" from the adolescent culture a few students who accept adult values, set their sights on long-range goals, and pay little attention to the frivolous activities of their fellows. This approach is very nearly the one we take now, in our emphasis on special programs for "the gifted child," our concern with selecting the most intelligent and setting them apart with special tasks which will further separate them from their fellows.

This is one approach to the problem, but I think a too-simple one, which refuses to face the serious problem of raising the level of training of the less-than-gifted child, one which in effect says that we must accept the hedonism and lack of interest in learning of the adolescent culture, a hedonism which drains off the energies of the majority of high school students. And this is an approach which can fail even in its attempt to develop the potentialities of the gifted child, for it depends completely on the selection process, and at its best probably misses far more potential scientists and scholars than it finds.

If we answer the question differently, if we refuse to accept as inevitable the irresponsibility and educational unconcern of the adolescent culture, then this poses a serious challenge. For to change the norms, the very foci of attention, of a cultural system is a difficult task—far more complex than that of changing an individual's attitudes and interests. Yet if the challenge can be met, if the attention of the adolescent culture can be directed toward, rather than away from, those educational goals which adults hold for children, then this provides a far more fundamental and satisfactory solution to the problem of focusing teenagers' attention on learning.

NORMS AND VALUES IN THE ADOLESCENT CULTURE

For the past two years, I have been conducting a study in nine public high schools of the "climate of values" which exists among the students in each school, and the effects of the different value climates upon achievement in school.* The schools, all located in the Midwest, include small-town schools, suburban schools (one—School F in Table 1—a working class school from which about 25 percent of the graduates attend college, and one—School I—an especially well-equipped upper-middle class school about 85 per cent of whose graduates attended college), and two schools (Schools G & H) in cities of about 100,000. Thus the range in social class, in size of school, in type of community, and in parental style of life is very great. Consequently, the schools, though far from constituting any cross-section or sample of American schools, cover a broad range of social contexts, a range which includes a large proportion of American schools.

TABLE 1

Summary Data of General Characteristics of the Nine Schools

	School								
General Characteristic	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*
Number of students[a]	200	400	500	400	500	1100	1400	1900	1900
Location	town	town	town	town	town	suburb	city	city	suburb
Average family income[b]	6000	6400	6400	6400	5800	6200	5400	7200	11400

[a] Given to the nearest hundred of students.
[b] Given to the nearest hundred of dollars.

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* This research was carried out under a grant from the U. S. Office of Education.

The interests of these teenagers, and the values of the adolescent culture itself, were studied in several ways, among them a questionnaire filled out by every student in each school.[1] To help get a picture of his general interests and activities, each student was asked:

> What is your favorite way of spending your leisure time?

The responses went as follows:

TABLE 2

Percentage Distributions of the Favorite Leisure Time Activities Mentioned by Boys and Girls

Favorite Leisure Time Activity	*Boys*[a] (*N=4,021*)	*Girls*[a] (*N=4,135*)
1. Outdoor sports	36.7	18.2
2. Being with the group, riding around, going up town, etc.	17.2	32.5
3. Attending movies and spectator events (athletic games, etc.)	8.5	10.4
4. Dating or being out with opposite sex, or going dancing	13.6	23.6
5. Hobby (working on cars, bicycles, radio, musical instruments, etc.)	22.5	20.1
6. Indoor group activities (bowling, playing cards, roller skating, etc.)	8.0	8.1
7. Watching television	19.4	23.6
8. Listening to records or radio	11.2	31.7
9. Reading	13.7	35.5
10. Other	7.1	9.3
11. No answer	8.1	3.7

[a] Percentages add to more than 100 per cent because some students mentioned more than one activity as their "favorite."

NOTE: For all those readers who use statistical tests of significance to evaluate the results of such tables as this, it should be stated that all the differences discussed in the text from this and succeeding tables are significant at more than the .01 level. This does not imply, of course, that the inferred difference is an important one. It should also be recognized that the assumptions behind significance tests are not met in such survey statistics.

These responses indicate that boys like to spend a great deal of their time in fairly active outdoor pursuits, such as organized sports, boating, and just going around with the fellows. They spend it on hobbies, too (the most frequent of which is working on their car) and on such passive pursuits as movies, television, records, and the like. Being with girls does not, as adults sometimes think, occupy a large part of their time (though, to be sure, it comes to occupy more time as they go from the freshman year to the senior year).

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[1] The problem of getting straightforward responses in such a questionnaire is extremely difficult. To help insure this, members of our staff administered the questionnaires in the absence of the teacher, and students were assured that no one in the school would see their responses. The responses we obtained were undoubtedly adult-oriented, but appeared, by all the criteria at our disposal, to give us as accurate a picture as adults are likely to obtain of the values current among the adolescents.

The comparison with girls' leisure-time activities shows a sharp contrast in some categories. Girls spend far less time in the active outdoor ways that boys enjoy themselves, more time "just being with their friends," and far more time in vicarious pleasures: reading, listening to records, watching television, movies, attending games.

The general pattern of these leisure pursuits, showing considerably more activity among the boys, is indicative of something which seems to be quite general in the adolescent community: boys have far more to *do* than girls have. Whether it is athletics or cars or hunting or model-building, our society seems to provide a much fuller set of activities to engage the interests of boys than of girls. Thus when girls are together they are much more often just "with the gang" than are boys (one of their frequent afternoon activities being simply "going up town" to window-shop and walk around).

There is a particular point of interest in these responses, thinking about their relation to the school. Few of these categories have any relation to things which go on in school. Some of the hobbies may, of course, have their genesis in school, and some sports are centered around the school, but, except for these, school activities are missing. No one responds that doing homework is his favorite way of spending his leisure time. To be sure, this is at least in part because homework is not viewed as leisure, but as work. Yet athletics manages to run over into leisure time, breaking the barrier that separates work from leisure. Perhaps it is not too much to expect that scholastic activities could also—if the right way were found to take them

TABLE 3

Percentage Distributions of the Criteria for Membership in the Leading Crowd Perceived by Boys and Girls

Criterion for Membership in the Leading Crowd[a]	*Boys*[b] (*N=4,021*)	*Girls*[b] (*N=4,135*)
Good personality, being friendly	26.6	48.7
Good looks, beauty	14.3	28.9
Having nice clothes	9.0	27.4
Good reputation	17.9	25.9
Having money	7.7	14.2
Good grades, being smart	11.9	11.6
Being an athlete (boys only)	16.3	——
Having a car (boys only)	10.7	——

[a] Only categories which were mentioned 10 per cent of the time or more are included.
[b] Percentages add to more than 100 per cent because some students responded with more than one criterion.

NOTE: In computing averages each of the nine schools was considered as a unit.

out of the category of pure work and allow them to spill over into leisure.

In a sense, we have spread out before us in Table 2 the activities which capture the energies and interests of teenagers, and the question we are asking is how schools can come to capture those energies and interests in a way that they presently fail to do.

The values of the adolescent subcultures in these schools were studied in several ways, including questions asked of each student. One question asked:

> "What does it take to get to be a member of the leading crowd?"

The major categories of response are tabulated in Table 3, for boys and girls separately.

Consider first the girls' responses, at the right of the table. Most striking in these responses is the great importance of "having a good personality" or "being friendly." Not only is this mentioned most often overall, but it is mentioned most often in seven of the nine schools. The importance of having a good personality or, what is a little different, "being friendly" or "being nice to the other kids," in these adolescent cultures is something which adults often fail to realize. Adults often forget how "person-oriented" children are: they have not yet moved into the world of cold impersonality in which many adults live. This is probably due to the limits on their range of contacts—for in the limited world of a grade school, a boy or girl *can* respond to his classmates as persons, with a sincerity which becomes impossible as one's range of contacts grows. One of the transitions for some children comes, in fact, as they enter high school and find that they move from classroom to classroom and have different classmates in each class.

After "a good personality" come a wide range of attributes and activities. A flavor of them is indicated by the collection of responses listed below—some hostile to the leading crowd (and in their hostility, often seeing it as immoral), others friendly to it (and in their friendliness, attributing positive virtues to it).

(What does it take to get into the leading crowd in this school?)

> "Wear just the right things, nice hair, good grooming, and have a wholesome personality."
> "Money, clothes, flashy appearance, date older boys, fairly good grades."
> "Be a sex fiend—dress real sharp—have own car and money—smoke and drink—go steady with a popular boy."
> "Have pleasant personality, good manners, dress nicely, be clean, don't swear, be loads of fun."
> "A nice personality, dress nice without over-doing it."
> "Hang out at ———'s. Don't be too smart. Flirt with boys. Be cooperative on dates."

Among these various attributes, the table shows some mention of "good looks" to be second to "personality" in frequency. Having nice clothes, or being well-dressed, is also important in most of the schools, as the responses above suggest and as Table 2 indicates. What it means to be well-dressed differs sharply in a well-to-do suburb and in a working-class school, of course. Nevertheless, whether it is the number of cashmere sweaters a girl owns, or simply having neat, clean, pastel frocks, the matter of "having good clothes" is an important one in the value systems to which these girls pay heed.

In part, the importance of having good clothes appears to derive from its use as a symbol of family status and general opulence. But in some part, it appears to derive from the same source that gives importance to "good looks": these items are crucial in making a girl attractive to boys. Thus in this respect the values of the girls' culture are molded by the presence of boys—and by the fact that success with boys is itself of overriding importance in these cultures.

Another element in the constellation of attributes required if one is to be in the leading crowd is indicated by the class of responses labelled "having a good reputation." In all these schools, this item was often mentioned (though in each school, a disgruntled minority saw the leading crowd as composed of girls with bad reputations and immoral habits). A girl's "reputation" is a crucial matter among adolescents. A girl is caught in a dilemma, a dilemma suggested by the importance of good looks on the one hand, and a good reputation on the other. A girl must be successful with the boys, says the culture, but in doing so she must maintain her reputation. In some schools, the limits defining a good reputation are stricter than others—but in all the schools, the limits are there, and they define what is "good" and what is "bad." The definitions are partly based on behavior with boys, but they also include drinking, smoking, and other less tangible matters—something about the way a girl handles herself, quite apart from what she actually *does*.

Another criterion by which a girl gets into the leading crowd or fails to get in is expressed by a girl who responded simply,

"Money, fancy clothes, good house, new cars, etc. (the best)."

These qualities are all of a piece: they express the fact that being born into the right family is a great help to a girl in getting into the leading crowd. It is expressed differently in different schools and by different girls, sometimes as "parents having money," sometimes as "coming from the right neighborhood," sometimes as "expensive clothes."

These qualities differ sharply from some of those discussed above, for they are not something a girl can *change*.[2] Her position in the system is ascribed according to her parents' social position, and there is nothing she can do about it. If criteria like these dominate, then we would expect the system to have a very different effect on the people than if other criteria, which a girl or boy could hope to achieve, were the basis of social comparison—just as in the larger society, a caste system has quite different effects on individuals than does a system with a great deal of mobility between social classes.

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[2] To be sure, she sometimes has a hard time changing her looks or her personality; yet these are her own personal attributes, which she can do something about, except in extreme situations.

It is evident that these family-background criteria play some part in these schools, but—at least, according to these girls—not the major part. (It is true that the girls who are *not* in the leading crowd more often see such criteria, which are glossed over or simply not seen by girls who are in the crowd.) Furthermore, these criteria differ sharply in their importance in different schools. In the working-class suburban schools (F), for example, they are almost never mentioned. They are mentioned most often in Schools B, D, and H—three schools in stable communities in which middle class families are somewhat more predominant (and more dominant) than in the other towns.

Another criterion for being in the leading crowd is scholastic success. According to these girls, good grades, or "being smart" or "intelligent," has something to do with membership in the leading crowd. Not much, to be sure—it is mentioned less than 12 per cent of the time, and far less often than the attributes of personality, good looks, clothes, and the like. Doing well in school apparently counts for something, though. It is surprising that it does not count for more, because in some situations, the "stars," "heroes," and objects of adulation are those who best achieve the goals of the institution. For example, in the movie industry the leading crowd is composed of those who have achieved the top roles—they are by consensus the "stars." Or in a graduate school, the "leading crowd" of students ordinarily consists of the bright students who excel in their studies. Not so for these high school girls. The leading crowd seems to be defined primarily in terms of *social* success: their personality, beauty, clothes—and in communities where social success is tied closely to family background, their money and family are important, too.

For the boys, a somewhat different set of attributes is important for membership in the leading crowd. The responses below give some idea of the things mentioned.

> "A good athlete, pretty good looking, common sense, sense of humor."
> "Money, cars and the right connections and a good personality."
> "Be a good athlete. Have a good personality. Be in everything you can. Don't drink or smoke. Don't go with bad girls."
> "Athletic ability sure helps."
> "Prove you rebel the police officers. Dress sharply. Go out with sharp Freshman girls. Ignore Senior girls."
> "Good in athletics; "wheel" type; not too intelligent."

By categories of response, Table 3 shows that "a good personality" is important for the boys, but of less prominence than it is for the girls. Being "good-looking," having good clothes, and having a good reputation are similarly of decreased importance. Good looks in particular are less important for the boys than for the girls. Similarly for the items which have to do with parents' social position—having money, coming from the right neighborhood, and the like.

What then are the criteria which are more important for boys than for girls? The most obvious is, as the table indicates, athletics. The role of athletics as an entree into the leading crowd appears to be extremely important. Of the things that a boy can *do,* of the things he can *achieve,* athletic success seems the clearest and most direct way to gain membership in the leading crowd. Having good grades, or doing well academically, appears to be a much less safe path to the leading crowd than does athletics (and sometimes it is a path away, as the final quotation listed above suggests).

An item which is of considerable importance for the boys, as indicated in Table 3, is a *car*—just having a car, according to some boys, or having a *nice* car, according to others. But whichever it is, a car appears to be of considerable importance in being part of the "inner circle" in these schools. In four of the five small-town schools—but in none of the larger schools—a car was mentioned more often than academic achievement. When this is coupled with the fact that these responses include not only juniors and seniors, but also freshmen and sophomores, who are too young to drive, the place of cars in these adolescent cultures looms even larger.

Several other questions in the questionnaire present the same general picture that this "leading crowd" question reveals: social success with the opposite sex (to which good looks, a good reputation, good clothes, and a car contribute), athletic achievement for boys, a few school activities such as cheerleading for girls, being willing to "have a good time" for both boys and girls, are the attributes and activities which are highly valued among teenagers. Far less important to the adolescent community are the activities which school is ostensibly designed for: scholastic achievement, leadership of academic clubs, and the like. For example, the question:

> "If you could be remembered here at school for one of the three things below, which one would you want it to be: brilliant student, star athlete, or most popular?"

Boys responded star athlete over 40 per cent of the time, and brilliant student less than 30 per cent of the time. This despite the fact that the boy is asked how he would like to be remembered *in school,* an institution explicitly designed to train students, not athletes.

It is clear from all these data that the interests of teenagers are not focused around studies, and that scholastic achievement is at most of minor importance in giving status or prestige to an adolescent in the eyes of other adolescents. This is perhaps to be expected in some areas, where parents place little emphasis on education. Yet the most striking result from these questions was the fact that the values current in the well-to-do suburban school (I) were no more oriented to scholastic success than those in the small-town schools or the working-class school.

There were differences in the value climates, but not at all in expected directions. And the differences were dwarfed by the similarities. For example, in every school, more boys wanted to be remembered as a star athlete than as a brilliant student. And in six of the nine schools, "good looks" was first, second, or third in importance as a criterion for being in the leading crowd of girls. Having good grades almost always occupied roughly the same place for girls. It was seventh in seven schools, fifth in one (B), and eighth in one (F). That is, in eight schools, it ranked below some of the less-frequently mentioned items not included in Table 3. For boys, the average was higher, and the variation was the greater: it was fifth in three schools (F, G, & I), sixth in two (C & E), third in one (H), fourth in one (B), seventh in one (D), and eighth in one (A). In all schools athletic achievement held a high place for the boys (it was first, second, or third in six of the nine schools).

In short, despite wide differences in parental background, type of community, and type of school, there was little difference in the standards of prestige, the activities which confer status, and the values which focus attention and interest. In particular, good grades and academic achievement had relatively low status in all schools. If we add to this the fact that these responses were given in school classrooms, under adult (though not teacher) supervision, and to questions which referred explicitly to the school, then the true position of scholastic achievement in the adolescent culture appears even lower.

In fact, there is a good deal of evidence that special effort toward scholastic success is *negatively* valued in most teenage groups. Scholastic success may, in the minor way indicated by the data above, add to a student's status among his fellows; but the success must be gained without special efforts, without doing anything beyond the required work. For example, along with nine public schools, the research mentioned above included a private university laboratory school whose average IQ level is probably surpassed by few schools in the country. This school should be an extreme example of the academically-inclined school. It is, and many students individually pursue their studies with intensive effort. Yet student leaders of the school reported that the "thing to do" to be part of the crowd was to get reasonably good grades *without* expending special efforts in doing so. In other words, even at this extremely scholastically-oriented school, there are group norms in the direction of holding down effort. How effective they are at this high school is unimportant. The important point is that despite the academic inclinations and background of the students, there is a norm against working too hard on one's studies.

A pair of questions asked in the questionnaire gives some indication of the lack of encouragement teenagers give to scholastic effort. Boys were put in a pair of hypothetical situations, one having to do with an academic course, biology, and the other having to do with a non-academic course closely related to the adolescent culture, auto shop. (Some of the schools had no auto shop, but the hypothetical situation seemed to be understood well in all schools.)[3]

> The situations, as posed in the questionnaire, were:
>
> Bill was doing well in biology class, because he had a hobby of collecting and identifying insects. One day his biology instructor asked Bill if he would act as the assistant in the class. Bill didn't know whether this was an honor to be proud of or whether he would be the "teacher's pet." How would you feel—that it would be something to be proud of, or wouldn't it matter?
>
> something to be proud of
> something I wouldn't care for
> I'd have mixed feelings
>
> Tom had always liked to fool around with cars and tear down engines and was very good at it. Because of this, the shop teacher singled him out to act as his special assistant. Tom didn't know what to do, since he had no use for boys who hung around the teacher. If you were in Tom's place what would you do?
>
> I would agree to be assistant.
> I wouldn't agree to be assistant.
> I am not sure.

After each of these questions, a second part was asked:

> Now suppose you decided to agree to be the assistant in biology. What would your friends think when they found out about it?
>
> They would envy me and look up to me.
> They would kid me about it, but would still envy me.
> They would look down on me.
> They wouldn't care one way or the other.
>
> If you did become the assistant in the auto-shop class, would your friends look up to you for it, or would they look down on you?
>
> They would envy me and look up to me.
> They would kid me about it, but would still envy me.
> They would look down on me.
> They wouldn't care one way or the other.

---

[3] Girls were asked a similar pair of questions, the first one the same biology question, and the second a question about sewing class. The results were essentially the same as those for the boys presented below, so that they are omitted for simplicity.

The distributions of responses on these two questions were as follows:

TABLE 4

Percentage Distributions of Friend's Reactions to the Biology Assistantship and Auto Shop Assistantship Perceived by Boys
(N=3,830)[a]

Friend's Reaction	*Biology Assistant*	*Auto Shop Assistant*
Envy and look up to me	5.3	18.6
Kid me about it, but envy me	50.0	42.0
Look down on me	3.9	5.7
Wouldn't care	37.3	28.8
No answer	3.5	4.9
Total	100.0	100.0

[a] The number of cases is only 3830 rather than 4120 as in the previous tabulation because these questions were in a second questionnaire administered in the Spring of the school year (1957-58). The difference is due primarily to drop-outs.

Only 5.3 per cent of these boys felt that their friends would unambiguously look up to them for being biology assistant; over three times as many, 18.6 per cent felt that their friends would unambiguously look up to them for the non-scholastic activity, assisting in the auto shop.

Both these situations, however, involve special effort toward goals defined by the school. And in both these cases, the largest category of response (50 per cent for the biology assistant, 42 per cent for the shop assistant) is the ambivalent one: friends will kid him for becoming the teacher's assistant, but will nevertheless privately envy him. This ambivalent response illustrates the conflicting feelings of adolescents about scholastic success: privately wanting to succeed and be recognized themselves, but (in most adolescent groups) publicly making fun of the success of others, and disavowing interest in scholastic success. Thus it is not only that scholastic success counts for little in the adolescent culture; extra effort devoted to scholastic matters often counts negatively, and is discouraged.

It is true, as suggested above, that some students may be partially "immunized" to this culture, either by the attention of adults who have singled them out for special attention, or by their own concentration upon career aims. Yet in most schools, such a move is almost completely isolating, for the student must cut himself off from the activities of his friends, and in effect remove himself from the pursuits which would make him "part of the crowd." It is not a move easily made, and certainly not one frequently made in the schools I have been studying.

The question, then, is the one posed earlier: Is the nonchalance of the adolescent culture toward scholastic matters something which must be accepted? Or, on the contrary, is it possible for the school itself, or the community, to modify these values in such a way that they will reinforce, rather than conflict with, educational goals? The first step in answering these questions is to analyze the source of the existing norms of the adolescent culture—to refuse to explain away these values by asserting that "teenagers are that way," and instead to inquire how the social demands and constraints to which adolescents are subject may help generate these norms.

INSTITUTIONAL DEMANDS AND GROUP RESPONSE

There is a class of institutions which are essentially composed of an administrative corps and a larger group of persons subject to such administration. Schools are one such institution, the teachers of course being the "administrative corps" and the students subject to their ministrations.

The armed services are another example, the officers and enlisted men composing the two groups. Many factories, which have a great number of workers doing roughly similar tasks under the authority of management, are institutions of this sort. Jails are perhaps the most extreme example, for in jails the constraints placed upon the inmates by the guards are maximal, and there is no period of escape from the demands of the institution.

To be sure, these institutions have many differences. The demands placed upon prisoners by the warden, or the demands placed upon workers by management, are very different from those placed on teenagers by the school. Yet the fact remains that the school is an institution designed by the adult society to transmit adult values and skills to children. To transmit these values and skills, the school makes demands upon its students.

In all such institutions, the administrative corps makes certain demands upon, and places certain constraints upon, those under them. In some institutions, the demands and constraints are great; in others they are less so. A kind of continuum could be conceived, with jails at the one extreme of maximal demands and constraints, with the army somewhere in the middle, and schools and factories located further from the maximal extreme (though differences among schools and differences among factories are so great that both can vary almost from one extreme of the continuum to the other). The demands made by management upon workers are essentially that they work and produce, in return for which they receive pay. Similarly, in schools, the demands are that the students study and learn, in return for which they receive grades and are promoted.

The second characteristic of such institutions of importance to the present discussion is not part of the formal rules and regulations, and cannot be found in books of standard practice nor in the school principal's handbook of administration. Yet it is no less there. This is the collective response to the demands and constraints, the collective response made by the group upon which these demands and constraints are thrust. In jails, the codes and the norms to which the inmates hold each other, sharply divergent from the goals and aims of the prison, are well known. The fact that prisons do not rehabilitate, but largely confirm offenders in criminal ways, is almost solely attributable to the fact that each prisoner is subject to the society of the inmates, with its deviant norms and values, and cannot be reached by the professed goals of the prison.[4] A caveat must be entered at this point, however. Not *all* the prisoners adhere to the strong group values and norms of the body of prisoners; some isolates either go wholly their own way or go along with the administration.

The jail is an extreme case, of course. But it illustrates the kinds of processes which occur in other institutions. In factories, among groups of workers, the same process has been documented by much research.[5] Work groups develop norms about how much work is "appropriate," norms against working for employers who pay low rates, norms against taking the jobs of men protesting against an employer. The rules of unions against such practices are merely the formalization of these norms.

These norms are reinforced by all the means groups have at their disposal—ridicule, ostracism, loss of prestige, even physical violence. The "rate-buster" is only one of many epithets which serve to set apart the worker who refuses to reduce his pace to meet the norms.[6]

The defensiveness of these work groups of course varies quite radically from industry to industry and employer to employer. The organization of workers in response to employers' demands ranges from the most militant unions with their arsenal of defense weapons to non-unionized informal work groups which have no dispute with their employer and use only the mildest means to constrain their over-eager fellows. It is true also, as in the jail, that despite the strength of these informal norms among workers, some

[4] There are several interesting researches which show the values of the prisoners. A classic is Donald Clemmer's *The Prison Community* (Boston: Christopher, 1940). Richard Cloward, reporting upon intensive research in an army prison, shows well the norms which develop among prisoners in response to the demands of the prison. He shows also the different modes of response of different prisoners to the rehabilitative aims of the prison. This is reported in *Social Control and Anomie: A Study of a Prison Community* (to be published by The Free Press).

[5] A classic study is F. J. Roethlisberger and W. J. Dickson, *Management and the Worker* (Cambridge: Harvard University Press, 1939). A recent study of a number of work groups gives considerable insight into the conditions which generate norms of defensiveness among workers. See Leonard R. Sayles, *Behavior of Industrial Work Groups: Prediction and Control* (New York: John Wiley & Sons, Inc., 1958).

[6] This is not to say that there are not sometimes pressures in the opposite direction—to work harder, faster. But these are pressures from the other workers as *individuals*, in the absence of group formation. Peter Blau shows this well in his *Dynamics of Bureaucracy* (Chicago: University of Chicago Press, 1955), in which he shows that one interviewing section in a welfare agency develops group norms which modify the demands upon them, while the other never develops such a group. Instead, each individual, in direct competition with the others, exerted a pressure for more and faster work.

workers isolate themselves from the group constraints and set their own pace.

The same process which occurs among prisoners in a jail and among workers in a factory is found among students in a school. The institution is different, but the demands are there, and the students develop a collective response to these demands. This response takes a similar form to that of workers in industry—holding down effort to a level which can be maintained by all. The students' name for the rate-buster is the "curve-raiser" or the "D.A.R.—damned average raiser," and their methods of enforcing the work-restricting norms are similar to those of workers—ridicule, kidding, exclusion from the group.

Again it is true that not all the students give in to this group pressure. In particular, scholastically-oriented subgroups can form in large schools and insulate their members against the larger group. It is true also that many students, preparing for college, may work intensely in preparation for a competitive examination for college entrance. Nevertheless, the results of the research discussed above suggest that for most students such intense efforts remain within the framework laid down by the group, interfering little with social activities, sports, or dates.

Looking generally now at this class of institutions, it is characterized by demands on the one hand, and group norms resisting these demands on the other. What is the source of the group norms? Are they purely a social irrationality, a means by which workers foolishly reduce their own pay, as the employer would argue, a means by which teenagers impede their own development, as teachers would insist? Hardly so.

Such norms seem quite rational, given a goal of maximum rewards for minimum effort. If the employer sees what speed is possible, for one man at least, he is likely to revise the work standards upward, or more informally to expect more work from the others. Thus the majority is protecting itself from extra work by constraining the fast minority. Since work rates are necessarily relative, and cannot be judged except in relation to the rates of other men, then one man's gain is another's loss. Consequently such norms, holding down the fastest men, act as a collective protection, to keep within reasonable bounds the effort each worker must expend on his job.

In a high school, the norms act to hold down the achievements of those who are above average, so that the school's demands will be at a level easily maintained by the majority. Grades are almost completely relative, in effect ranking students relative to others in their class. Thus extra achievement by one student not only raises his position, but in effect lowers the position of others.

Again the response of the group is purely rational. By holding down efforts and achievements of those who might excel, the general level of effort required to keep an average position is reduced. The group's effort can be seen as one of "combining to prevent excessive competition," and is precisely parallel to the trusts and combines of industries, which attempt by price-fixing and other means to prevent excessive competition. The structure of the situation is the same in both cases: the teacher (or the customer) is attempting to deal with each student (or manufacturer) independently, to obtain his best effort (or his lowest price.) In response, the students (or manufacturers) combine, placing constraints on one another, so that the effort (or price) may be kept at a level which is comfortable for most members.[7]

The school creates, with its grading system, what an economist would call a "free-market" situation, with each student a competitor against all his classmates for scholastic position. This unlimited competition, to be sure, may operate without restraint in a few schools, and it is this "free-market" which has led some educators and laymen to attempt to reduce competition. In the large majority of schools, however, there is the collective protection, the defense against excessive effort by group norms which restrain efforts. The schools in which such norms do not exist are few indeed. My research included, as mentioned earlier, one elite suburban school from which 85 per cent of the graduates attended college; even in this school, good grades were certainly *not* an important means of prestige, and extra effort devoted to scholastic matters brought on the usual kidding or ridicule. And the example of the university high school in which a norm of "good grades without extra effort" exists amid one of the most achievement-oriented student bodies in the country suggests that the school's demands seldom fail to create such a response from the adolescent society.

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[7] The way in which a modification in the structure of institutional demands and rewards creates a modification in the group response is well illustrated by the following comment. It was written by a colleague (Jan Hajda) who had attended a Czechoslovakian gymnasium, upon reading a draft of this paper.

> In the European gymnasium system, both the institutional demands and the group response to them are different. First, the levels of achievement are set by impersonal standards established by the Ministry of Education or a comparable distant supervisory body. Consequently, the standards themselves cannot be manipulated by students nor, for that matter, by their teachers. Theoretically, all students in a given class can pass a course on the highest level or fail to pass. Ideally, the performance of students is judged individually in terms of the set standards and not in comparison with the performance of his peers. This fact tends to minimize—although it does not eliminate—interpersonal competition.
>
> Nobody benefits from holding down effort to a lower level and consequently there is no reason for protecting the collectivity from superior achievement of a few students. The group solution is not in "price-fixing" but in establishing a holding operation which benefits all participants—institutionalized cheating. The informal group norms demand that the top students help the mediocre ones by letting them copy their assignments or by circulating correct answers to a written class examination while the examination is in progress. In a way, the top student is giving up his chance to outdistance others without lowering his own performance. In return, he gets not only recognition for his cooperative behavior but also for his scholastic performance. The better his own performance, the higher the survival chance of his peers.
>
> Thus it is in the interest of the collectivity that there be at least a few outstanding achievers. The top students become symbols of collective security. In turn, academic achievement becomes highly desirable, since it represents the safest way to informal leadership and prestige. The exception to this rule arises only in case the top students refuse to cooperate in cheating, i.e., refuse to share the product of their labors with their peers. In such instances the high achiever is ostracized, ridiculed, and stereotyped as teacher's pet, and his peers do their best to prevent him from making the grade he is aiming for.

The result of these norms produces in students a conflict of motivation: put very simply, to be one of the fellows and not work too hard in school, or to work hard in school and ignore the group. Different teenagers resolve this conflict in different ways. Whichever way it is resolved, it sets an artificial dilemma. On the one hand are sociable average students (who could do far better); on the other hand are a few academically-oriented, highly competitive isolates. A boy or girl can be oriented to academic achievement *or* to being popular, but it is hard to be both. This is almost puzzling, because in certain activities (e.g., athletics), achievement generates popularity rather than scorn.

The question raised by this situation is whether such a conflict is necessary. Is it impossible to have the group's informal norms positively *reinforce* (or at least not conflict with) scholastic achievement? To answer this question it will be useful to go a roundabout way and to examine an experiment carried out by a social psychologist some years ago.

DEUTSCH'S EXPERIMENT: "COMPETITION VS. COOPERATION"

Morton Deutsch carried out an experiment to show the effects of a "competitive situation" and a "cooperative situation" upon achievement, cohesion, and other matters.[8] The experiment went roughly as follows: Classes in industrial psychology were given hypothetical human relations problems to discuss and solve. There were two different reward structures: (a) In some classes, each member was told that he and his four fellow students would each be ranked from 1 to 5 according to the contribution of each to the discussion and to the problem's solution. At the end of the semester, each student's grade was based upon the average of his ranks through the semester. (b) In five other classes, each class was told that it would be ranked as a class from 1 to 5 on the basis of its solution to the problems. At the end of the semester, the ranks of the five classes were averaged, and the members of each class graded according to their class's average rank. Thus in condition (a), each student was being compared with his classmates. In condition (b), each class was being compared with other classes.

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[8] Morton Deutsch, "The Effects of Cooperation and Competition upon Group Process," in D. Cartwright and A. Zander (eds.), *Group Dynamics* (Evanston: Row Peterson, 1953), pp. 319-53.

Deutsch found several things, all favoring condition (b). He found that the solutions to the problems were better among the classes in condition (b); the class members impeded one another in the discussion under condition (a), but aided one another under condition (b); the feeling of class members toward one another was more positive under condition (b) than (a).

The structure of rewards under conditions (a) and (b) is simple to state: in condition (a), individuals were compared with others in the same group and rewarded relative to these others. This produced competition between individuals. In condition (b), groups were compared with other groups and rewarded relative to the other groups. This produced competition between groups. But although there was competition in both cases, the second kind of competition produced very different consequences from the first: in achievement, in the group members' feelings toward one another, in the unity of the group. So long as the group was competing against other groups, one man's achievement benefited, rather than lowered, the position of other members of his group; consequently, the group's response to his achievement was positive rather than negative.

When the competition was between individuals, the fact that one individual's achievement lowered the position of other group members generated *interference* with one person's efforts by other members, though the interference was perhaps unconscious and subtle. When the competition was between groups, there was *support* of one person's efforts by others in the group. In effect, then, Deutsch's experiment answers the question raised earlier: whether it is possible for the group's informal rewards to reinforce the formal rewards from the outside. When competition was no longer between individuals, but instead between groups, this reinforcement occurred.

An excellent example of the group's norms reinforcing achievement rather than inhibiting it may be found within the high school itself. Athletics is the activity. In high school athletics, there is no epithet comparable to curve-raiser, there is no ostracism for too-intense effort or for outstanding achievement. Quite to the contrary, the outstanding athlete is the "star," extra effort is applauded by one's fellows, and the informal group rewards are for positive achievement, rather than for restraint of effort.

Why the difference between athletics and studies? The athletic team is competing as a team against another school. Thus any achievement by one person benefits those around him—who in turn encourage his efforts, rather than discourage them. His efforts benefit the team, and fellow-team members encourage his efforts. They bring prestige to the school, and other students encourage and look up to him. His achievements give a lift to the community as a whole, and the community encourages his efforts. The basketball player or aspirant who shoots baskets at lunch period in school is watched with interest and admiration, not with derision. This is in direct opposition to achievement in the classroom, which does not benefit the school and puts one's fellows at a disadvantage. A boy or girl who studies at lunch period is regarded as someone a little odd, or different, or queer.

A passage from a recent novel about a high school illustrates the general process:

> "In his home room Trent [a star halfback] received his schedule, made out for him while he was at football camp.
> "Are we going to have a good football team this year?" Miss Vereen asked, as she handed him his schedule slip.
> "Yes ma'am, I hope so."
> "Well, that's fine. That's certainly fine." Miss Vereen knew nothing about football and probably had never seen a game, but anything which increased the stature of Harrison [High School], to which she was fanatically devoted, had her loyal support.[9]

When I write to one of the principals in the schools I am studying and want to say something good or congratulatory about his school, what can I comment on? Nothing scholastic, for his school has little or no opportunity to do anything *as a school* in scholastic directions. I can congratulate him on the basketball team's success, for this is an achievement of the school. When I talk to a class of students and want to compliment their school, the same conditions hold—I can only congratulate them on what the school has done *as a school,* which is ordinarily some athletic success in interscholastic competition. Only when I am talking to one student, alone, can I congratulate him on his excellent grades.

Such congratulations and support of activities of the school as a whole, multiplied many times from persons inside and outside the school, persons inside and outside the community, encourage a school to do more and better in directions which bring on such encouragement. Thus in spite of itself the school's energies are channeled into these directions—the directions which generate support for the school, which make others look up to the school, and give the school a pride in itself for its achievements.

One finding from the research discussed earlier is relevant here. The students' school spirit or feeling of identification with the school was indicated by answers to several questions in the questionnaire. It was highest in those schools which had winning athletic teams, and lowest in schools whose teams had not been successful for several years. But lowest of all was the university high school mentioned earlier, which had a minimal athletic program and discouraged any sort of interscholastic competition. In this school there was seldom an activity which the students could "get behind" as a body.

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[9] John Farris, *Harrison High* (New York: Rinehart, 1959), p. 5.

The peculiar power of interscholastic competition to generate encouragement and support for achievement lies in two directions. First, competition with other groups has a magic ability to create a strong group goal. While some group projects succeed without the added incentive of competition, others would hopelessly flounder if it were not for the chance of winning. This has been the fate of many well-intentioned and well-planned group projects in high schools—projects which have failed to capture the energies of the group.

Secondly, interscholastic competition generates support at levels which intergroup competition within the school can never reach. Until now, I have discussed the social support given by other "group members," with no further differentiation. But consider the difference between interscholastic competition, on the one hand, and competition between two teams into which a school class has been divided, on the other. In the latter case, there will be support and encouragement only from fellow team members. In the former case, there will be support first from other team members, then from other non-participating students, and finally from persons in the community. That is, if the school's winning gives the community pride in itself and its school, they will encourage its efforts; if the team's winning gives the student body pride in their school, they will encourage its efforts.[10]

In other words, when competition is interscholastic, the social support and encouragement begins at the level of the school itself, thus permeating the whole social milieu surrounding the team members. When it is intramural, social support begins only at the level of the team, or the subgroup it represents, resulting in a much less supportive social environment for the team member.

AN ALTERNATIVE TO INTERPERSONAL COMPETITION

The structure of competition in high schools—interpersonal competition in scholastic matters, interscholastic competition in athletics (and sometimes in music, and occasionally in a few fringe activities)—presents a curious picture. It undermines a student's efforts in scholastic directions (where he is working only for himself), and encourages his efforts in these other, tangential directions (where he is striving for team and school as well as himself). The interests of the adolescent community, emphasizing sports and ignoring studies, must be attributed in large part to this structure of competition—something for which adults, not adolescents, are wholly responsible.

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[10] To be sure, there are interscholastic games between schools which are ignored by student body and community alike; but this is less true than is usually realized when such games are given attention and encouragement by the school administration.

One obvious solution is to substitute interscholastic (and intramural) competition in scholastic matters for the interpersonal competition for grades which presently exists. Such a substitution would require a revision of the notion that each student's achievement must be continually evaluated or "graded" in every subject. It would instead make such evaluations infrequent, and subsidiary to the group contests and games, both within the school and between schools.

Such a change from interpersonal to intergroup competition would also make it necessary to create, with considerable inventiveness, the vehicles for competition: intellectual games, problems, group and individual science projects, and other activities. Yet there are some examples which show that it can be done: debate teams, group discussion tournaments, drama contests, music contests, science fairs (though science fairs as now conducted lack one crucial element, for they are ordinarily competitions between individuals, and not competitions between schools, thus lacking the group reinforcement which would go along with "winning for the school"). There are, in one place and another, math tournaments, speaking contests, and other examples of interscholastic competition.

In other places, one can find the bases from which to develop new kinds of scholastic competition. For example, at Rand Corporation sociologists have developed "political gaming," in which teams represent policy-makers in various countries. An international situation is set up, the policy-making teams respond to it and to one another's moves (under the supervision of referees), and a game is pursued in earnest. It is not too difficult to see how this, and modifications of it to include legislative politics, union-management bargaining, and other such situations, could be brought to the high school level and used in interscholastic competition. (Rand reports that an experiment in political gaming at MIT induced such interest among the student players and spectators that for weeks afterwards they avidly followed international news events, to see how their moves corresponded with actual policies as they developed.)

As another example, business executives are now being trained in a few companies by "management games," in which hypothetical situations are set up requiring teams of executives to make decisions and observe the consequences. Electronic computers provide the hypothetical situation and the economic environment, so that the executive in a sense is playing against the computer. With effort and ingenuity, such games could be adapted to training in high school, not only in business economics, but in other areas.

There are many examples in high schools which show something about the effects such competitions might have. As an example, one of the schools I have been studying is too small to compete effectively in most sports, but participates with vigor each year in the state music contests. It nearly always wins a high place in the statewide contest. The striking result of this successful competition is the high status of music among the adolescents themselves. It is a thing of pride to be a trombone soloist in this school, and the leading boys in the school are also leading musicians—not, as in many schools, scornful of such an unmanly activity. This is despite the fact that the school serves a largely farming community.

It is true that many of the examples mentioned above have had far less effect in bringing informal social rewards, encouragement, and respect to participants than the present analysis would suggest. The reason is clear, however: such social rewards from the student body as a whole are only forthcoming in response to something the individual or team has done for *them,* such as bringing glory to the school by winning over another school. If the activity, whether it be debate or math competition or basketball, receives no publicity, no recognition in the newspapers and by the community generally, then its winning will have brought little glory to the school, and will bring little encouragement to the participants. (For example, basketball games at the University of Chicago have for years played to crowds of ten or twenty students.)

For this reason, sporadic and infrequent cases of interscholastic competition in non-athletic activities, with no attention to promotional activity, have little effect. However, if there were systematically organized competitions, tournaments, and meets in all activities ranging from mathematics and English through home economics and industrial arts to basketball and football, and if promotional skills were used, the resulting public interest and student interest in these activities would undoubtedly increase sharply. Suppose such a set of activities culminated in a "scholastic fair," which like a state fair included the most diverse exhibits, projects, competitions, and tournaments, not between individuals, but between *schools.* I suspect that the impact upon student motivation would be remarkably great—an impact due to the fact that the informal social rewards from community and fellow-students would reinforce rather than conflict with achievement.

These are simply examples of what might be done to change the structure of rewards in high school—to shift from interpersonal competition, with its conflict-producing effects, to intergroup competition, in which group rewards reinforce achievement. More important than these examples, however, is the general principle—that motivations may be sharply altered by altering the structure of rewards, and more particularly that among adolescents, it is crucial to use the informal group rewards to reinforce the aims of education rather than to impede them.

It is important, of course, that unintended consequences be taken into account in changing the reward structure in the ways that have been suggested. For example, in devising interscholastic games of an intellectual sort, it is important that they do in fact teach the skills desired. A carelessly-designed program of interscholastic games might result in nothing more than a series of quiz shows, which exercise no other mental activities than those of recall. It is for this reason that the recently-developed "political gaming" and "management games" which use electronic computers to simulate the market seem particularly interesting. Like debate, and unlike quiz shows, these games teach skills and impel the participants to learn how the economic, political, or other system operates.

Perhaps the most important problems in devising such games would be to insure a balanced system of rewards among the various activities and to insure a balanced participation among the various students. As many schools have found with extra-curricular activities, participation becomes narrowly confined to a few unless rules are set up to prevent such concentration. If interscholastic games were to replace the present within-school competition for grades, such rules to distribute participation would become even more important.

These problems indicate that such changes should be made with care. But the general point is clear: the present structure of rewards in high schools produces a response on the part of the adolescent social system which effectively impedes the process of education. Yet the structure of rewards could be so designed that the adolescent norms themselves would reinforce educational goals.

Laymen to Lawmen: Law School, Careers, and Professional Socialization

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A MAN'S SCHOOLING HAS ALWAYS played some part in his work life. Yet today education and career are increasingly bound together as more and more occupations demand greater formal preparation.[1] Officials of college and school find themselves deeply involved in screening, training, and legitimating candidates for a wide variety of vocations. Despite Durkheim's emphasis on the division-of-labor over fifty years ago, serious sociological study of occupations and professions has a very short history.[2] The complex relationships between institutions of education and work, therefore, remain largely unexplored in contemporary social science. This article is an examination of such institutional connections in the profession of law; the issues it raises are of concern in many modern occupations.

The legal profession is more varied than it may appear. Its formal apparatus of training and certification pays little attention to the specialization which in fact prevails among members of the urban bar.[3] The legal profession encompasses, in a sense, many occupations. It is this diversity which leads to the twin concerns of this discussion: the making of young lawyers is the making of different *kinds* of lawyers. To understand socialization (our use of this term is clarified later) in law and the over-all structure of the training system, the analysis must be set within the context of internal diversity and the allocations which underlie it.

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[1] For more extended discussion of the increased interdependence of school and work careers, see Theodore Caplow, *The Sociology of Work* (Minneapolis: University of Minnesota Press, 1954).

[2] The first classic statement on the division-of-labor is, of course, Adam Smith's *Wealth of Nations.* Emile Durkheim, however, was the first to develop its sociological significance. See Emile Durkheim, *On the Division of Labor in Society,* trans. George Simpson (New York: The Macmillan Company, 1933).

[3] Specialization can be of two types; a man may limit himself to law dealing with a restricted area, e.g., admiralty law or oil law, or he may emphasize certain skills, such as trial work or negotiations with government agencies. The classification used in this article deals primarily with the social forms within which these various kinds of specialization are carried on and thus cuts across both skill and substantive specialization.

This paper begins with a brief review of the various types of law schools found in one urban area today, and the types of beginning careers young lawyers follow. Allocation is then discussed in terms of the distribution of career opportunities; a section on socialization follows. A summary and interpretation section places these basic social processes against the background of the legal profession's adaptation to its position in American society. The data on which our discussion is based stem from a study of early career development among Chicago attorneys.[4] The aim here is a general introductory discussion; definitive study lies in the future.

TYPES OF LAW SCHOOLS AND EARLY CAREERS

Law schools today reflect two major trends which have dominated American legal education over the last century.[5] The first, the replacement of office apprenticeship by formal school training, has only recently become standard. As late as 1951, 23 per cent of the lawyers included in a national survey had never attended law school.[6] Today almost all those entering legal work attend and graduate from law school.

The second major trend in American legal education is the emergence of schools marked by heterogeneity in organization, emphasis, and academic standards. A legal education today may vary from attendance at the law school of a great university to schooling by practitioners teaching part-time in a small evening school; in a few states, students may still prepare for the bar by taking correspondence courses.[7] Despite years of effort by professional associations, legal education has not achieved the kind of standardization in professional education that we associate with medicine. Two major lines of development can be traced in the emergence of law schools in this country—the "university" school and the "independent" school. The university line has origins in the courses given at some Eastern universities in the late eighteenth century, but Harno sees the Harvard Law School built by Story early in the nineteenth century as the key model for this kind of legal education.[8] Today we find law schools based on this model on numerous private and state university campuses. Another line of development, however, is found in the private law school; the first of these—the Litchfield, Connecticut Academy—was founded in 1784 and consisted essentially of a few practitioners charging students for the opportunity to be initiated into the mysteries of the law. This mode of legal training also spread throughout the nation as did proprietary schools of medicine at that time. The independent school of today, though generally incorporated not-for-profit, is the direct descendant of this type of enterprise. Details on these movements in legal education are not recorded (indeed Harno comments that the history of American legal education has yet to be written), but it is clear that variety rather than uniformity has been the chief characteristic of the development of American legal education.

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[4] For detailed description of that study and the methods used, see Dan C. Lortie, "The Striving Young Lawyer: A Study of Early Career Differentiation in the Chicago Bar" (unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1958.) Briefly, the respondents were interviewed intensively (two and one-half to three hours) using an instrument which incorporated precoded, open-ended, and focused sections. The sample, designed to obtain 20 per cent of the graduates of all six Chicago area law schools for 1951, was selected randomly. Those leaving the Chicago area were eliminated. The achieved sample (loss was primarily through inability to locate some men, less through refusal) amounted to 81 per cent of the original names selected from lists provided by the six schools. The losses are most likely among those who did not enter practice of any kind; the sample therefore probably under-represents men employed in non-legal work or in legal work in business and government positions. Indications are that although N is relatively small (72 cases), the sample includes all major types of outcome found among young metropolitan law school graduates. All but one person in the sample are male.

This article employs the data collected in that study with additional analyses not contained in the original report. The author wishes to express his appreciation for financial and other assistance from the Decalogue Society of Lawyers and the Nathan W. Schwartz Foundation in conducting the original study. Gratitude is also expressed to Robert Marden and Charles Benson for many helpful suggestions in the preparation of this article.

[5] The principal sources used here are James W. Hurst, *The Growth of American Law* (Boston: Little, Brown and Co., 1950), Albert J. Harno, "Legal Education in the United States," Harvard Law School Library (mimeographed), and Roscoe Pound, "Legal Education in the United States," *Encyclopedia Brittanica,* 1945.

[6] A. P. Blaustein and C. O. Porter, *The American Lawyer* (Chicago: University of Chicago Press, 1954).

The six law schools in Chicago reflect this diverse development. Two (Chicago and Northwestern) are clearly of the university type; their students are recruited from a wide range of states and nations, and their faculties are composed of men with reputations as legal scholars and a primary commitment to legal education. The students attend full-time and no evening course of study is offered. Both of these law schools are closely connected with well-known universities and their curricula emphasize the broader aspects of American and even international law. The two independent schools (John Marshall and Chicago Kent), on the other hand, recruit their students from the adjacent area and feature faculties numerically dominated by practitioners who teach part-time. The students may follow either an evening or daytime course of study, but daytime schedules are especially arranged to facilitate outside employment. The schools have no relationship to any university or college; the curricula emphasize local and state law and are geared to the requirements of the Illinois State Bar Examination.[9] The two Catholic schools (Loyola University and DePaul University) combine features of both the university and independent types of law school, and one receives the distinct impression that they stand between the other two types in regard to composition of faculty and student body, proportion of full-time students, and curriculum focus. Although much of their teaching is similar to that of non-religious schools, the Catholic schools lay special emphasis on the doctrine of Natural Law and its relationship to the theory and practice of American law.[10]

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[7] *Ibid.*

[8] Harno, *op. cit.*

[9] At least two special "cram schools" are operated privately in Chicago for those ready to sit for the Illinois State Bar Examinations—one gathers that graduates of national

There are two principal types of law *practice* in the early years of a legal career. A young attorney may take a position as an "associate" in a firm and work with clients who belong to his senior colleague (s), or he may become a self-employed practitioner working with clients he attracts and serves.[11] When we use such a typology and compare men in law firms with self-employed practitioners, we find differences between them which embrace a remarkable variety of sociologically significant characteristics. Indirect versus direct relationship to clients is a dimension which organizes the data so that important quantitative and qualitative differences are revealed.[12]

The divergences between law firm attorneys and self-employed practitioners can be summarized under the headings of social structure, ecological position, values, and participation in the political order. The role of the law firm man is determined by his relationship to senior colleagues; his early years are marked by a constant awareness that his seniors must decide whether or not to accept him into the core of permanent colleagues consisting of partners in the firm. Until his promotion or exclusion, he works under supervision, performing tasks which are generally fragments of a greater whole, and works with limited responsibility. He is usually salaried, but occasionally is allotted a portion of the firm's profits. The law firm's clients are generally individuals and groups requiring regular and repeated

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schools who plan to practice in the State of Illinois take it as a matter of routine that they will spend a month or two for the special purpose of drilling themselves in strictly local law. Although no systematic data were gathered on this point, the impression was gained that graduates of independent and Catholic schools are less likely to spend time at these schools.

[10] The law schools played an interesting part in the emergence of the two Catholic universities. To achieve the formal status of "university" each had to feature post-graduate education. DePaul annexed a pre-existing proprietary law school and became DePaul University while Loyola, then St. Ignatius College, created its own law school and became Loyola University. An official of one of the universities explained this development in terms of its being "easier" to open a law school than to pursue the alternative courses in achieving university status.

[11] A third alternative is employment in an organization where the ultimate employer is not a lawyer; for example, large business corporations or government bureaus. The ultimate aim of such organizations is not the *practice* of law for clients.

[12] Dan C. Lortie, *op. cit.*, includes sixteen tables using role of respondent as a major variable. In most of these, differences between law firms and self-employed practitioners are significant at the .05 level. Many other differences are summarized in chaps. vi through xi.

legal advice; corporations are the principal sources of demand for such legal service. The structure "around" the self-employed practitioner (hereafter referred to as the private practitioner) is by comparison colleague-free; he works alone on matters brought to him by clients whom he bills directly. He may be employed as well, but employment is generally part-time and in work somewhat marginal to law. His goal is usually full self-employment in rendering service to his own clients. The fields of law in which he works (personal injury, divorce, small real estate transactions, collections) are not characterized by a repetitive clientele—once he has rendered a service, he may never see that client again. As a result, he must obtain a steady supply of clients, and he must relate himself to sources which provide them. Strategies for such "linkages" are varied, but all involve considerable enterprise on the part of the young attorney.[13]

Law firm men are often part of the central high prestige system where great commercial, financial, industrial, and political decisions are made; young associates rub shoulders with this decision-making elite. The private practitioner, on the other hand, is generally located in work of less general import. Insurance law, divorce law, and his other typical activities are not at the core of the larger economy. This marginal position is symbolized by the simple downtown offices or neighborhood quarters occupied by the private practitioner, which stand in sharp contrast to the panelled, book-lined, expensively furnished suites of the large firms on La Salle Street.

The values held by these two types of practitioners are also diverse. Success to the law firm man is upward movement in the hierarchy of the firm, or appointment to judicial office. The private practitioner measures his success by the financial reward it brings him. When asked what personal qualities are most useful in achieving success, law firm men cite technical proficiency (including quality of training) more often than do private practitioners; the latter stress qualities of enterprise oftener than men located in law firm practice. Asked what issues face the legal profession today, law firm men stress the responsibilities of the occupational group for court reform, protection of the public, and other special obligations of lawyers to society. Private practitioners, perhaps more sensitive to the competitive realities, emphasize internal problems such as overcrowding and "infringement" by other occupations. The two types of lawyers also show a divergent relationship to the political order: the law firm man participates less in political activity but dreams of a federal senatorship or judicial post as climax to his legal career. Private practitioners are more frequently regular party workers (e.g., precinct captains) and speak frankly of how useful such political activity is in building a clientele.

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[13] The broader usefulness of the typology discussed here is outlined in a paper presented before the 1959 Annual Meeting of the American Sociological Society (Chicago, September 5) entitled: "Institutional and Entrepreneurial Careers in Law and Medicine," (to be published in *Human Organization*).

The gap which separates these two types of practitioners has been reviewed in somewhat general terms. Two quotations from representative interviews dramatize the differences in the positions these young men occupy. The first speaker is a young associate in one of Chicago's oldest and largest corporate law firms. He is responding to a question on the major problems facing him in his career.

> I've been here but a relatively short time and I don't feel fully approved by the partners—at least to the extent that they feel my opportunities are unlimited.... There's still a bit of apprehension on my part, I'm not fully secure in the job. I don't feel I'll lose it surely, but some people are here ten to twelve years and still are not partners. You wonder if it'll happen to you.

Contrast the constrained anxiety of the law firm man with the blunt response (to a similar question) of a private practitioner specializing in personal injury and divorce matters.

> It's a rat race. No one is pounding on the door. No one but your friends know you're in business. You rely on friends to stimulate business—and it's an active campaign with a narrow line between stimulating and soliciting. Sometimes I dream of a big colored advertisement that says: SEE ME FOR DIVORCE! Do that, you're out. You meet as many people as you can, make as many friends—that's the key to the whole business.... My average client is an illiterate, uneducated, $2,500 man who has never been in an auto accident before. That person is a schlub with a touch of larceny.

ALLOCATION: LAW SCHOOL AND CAREER DEVELOPMENT

The initial years in the careers of young Chicago lawyers are marked by movement and change; the first impression one receives is of hectic scurrying from position to position. When we analyze the movement, however, we find patterns in the way these men are sifted and sorted into various roles in the social system of legal work. Seemingly erratic activity emerges as remarkably predictable; certain kinds of men move in one direction, others in another. These regularities of career development, associated with social characteristics, are the result of a complex and subtle process of social allocation.[14] Formally equal members of the bar, these young men do not possess equivalent resources in the development of their careers. It is more probable, for example, that the scion of a prominent family will enter a law firm than set up shop as a private practitioner. "Probable" is a key term, for these regularities are not scientific laws, but statements of probability.

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[14] When the sociologist speaks of allocation he is viewing the movement of persons into social positions from the societal rather than the individual point of view. We can speak, heuristically, of society's need to man its various posts. The same phenomena, seen from the subjective perspective, are dealt with in the study of occupational and role "choice" by individuals. Cf. Talcott Parsons, *The Social System* (Glencoe, Ill.: The Free Press, 1951), pp. 114-19.

What part does law school play in these regularities—these social assignments? Do different law schools "deal out different hands" to their graduates? In coping with this question, we must probe the relationship between law school attendance and early career development.

The Chicago data indicate a relationship between attendance at university law schools and law firm employment, and another relationship between attendance at independent schools and subsequent self-employment as a private practitioner or employment outside law. The data on which this statement rests cannot be presented here in their entirety, but they include the testimony of law school officials, numerous general statements by respondents, and information available on school-work movements in the decade following World War II.[15] Table 1 presents the school-to-work sequences that occurred in the class of 1951. The patterns found are consistent with other information gathered on typical transitions from law school to various types of early Chicago careers.[16]

TABLE 1

Distributions of Early Career Outcomes by Type of Law School Attended

Early Career Outcome	*Type of Law School Attended*							
	University		*Catholic*		*Independent*		*Total*	
	N	%	*N*	%	*N*	%	*N*	%
Law Firm	14	58	7	32	6	23	27	38
Private Practice	7	29	8	36	12	46	27	38
Non-Law and Employed	3	13	7	32	8	31	18	25
All	24	100	22	100	26	100	72	101†

† The total is more than 100 per cent because of rounding.

Inspection of Table 1 reveals that the modal outcomes are clearest in the case of university and independent school graduates. The career outcomes for Catholic school graduates are mixed. The dominant movement of university men to law firms has an additional characteristic: they join firms which are larger, on the average, than those entered by graduates of both independent and Catholic law schools.

The typical outcomes for university and independent school graduates differ sharply in the gains and risks involved for them. Those joining firms (the larger the firm, the higher the possible ultimate income)[17] hope for partnerships and fear rejection in the form of referral to a company position as salaried counsel, or retention as "greying associates." The years as associate, however, carry the great advantage of introduction into practice under the tutelage of experienced, successful men. Risks accompany this step, of course, as associates put aside acquiring clients of their own and occasionally become specialized in ways not transferable to other employment or practice. When men who fail to achieve partnership move into salaried positions in corporations, it is not always by choice—they rarely possess the clientele with which to undertake private practice.

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[15] Available evidence suggests that this relationship is general throughout the nation. nine or more men is $21,500, versus $6,500 for two-man firms. The same general relation- they find graduates of "name schools" in law firms and underrepresented in solo practice.

[16] Prior to the sample reported on in this article, the author conducted twenty-five exploratory interviews with graduates ranging from one to five years out of law school, and the same trends were found within that group. In addition, all law school deans were asked for the typical patterns of their students' transition to work and the deans' statements are consistent with the data presented in Table 1.

Men leaving school for private practice rarely begin to serve clients immediately. The first need is for immediate income and time to acquire a clientele; thus they normally seek employment which is sufficiently flexible to allow time for practice. Most private practitioners hope to drop such non-legal employment as soon as possible, but four years after law school many still need the "crutch" of insurance adjusting or investigating work. The contingencies these men face are those of enterprise—business failure is the fear, "the big break" the prayer. With no experienced "tutor" to guide them, they learn through their own mistakes and successes; informal advice from peers is the way they usually augment their limited knowledge of the ways of practice. Failure can and does occur; several respondents in the sample had attempted private practice and were forced to return to full-time employment in non-legal positions. Others were already earning incomes large enough to support additional professional help.

Catholic school graduates are found in all types of early career sequences except the largest and most illustrious law firms. There is some suggestion that their placements reflect the increasing prominence of Catholic businesses and law firms in the city; some respondents believe their religious and school affiliations opened doors that would otherwise have been closed to them. Since those joining firms do not enter the largest firms, the steps in promotion are few and the ascent consequently more rapid. Assuming partnership status sooner than men in large firms, they also take on the client-getting responsibilities of senior members of the firm at an earlier point in their careers.

There is an alignment, then, between types of law schools and types of early practice, but the alignment is not complete. The careers of some men deviate from the modal pattern, and we can only speculate on changes that will occur in the modal careers among these men.[18] Nor can an objective statement be made on the superiority of one career-line over another; the disagreement among the young lawyers themselves is such that to choose one form of success over another is a question of personal values.[19]

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[17] Blaustein and Porter show that the median net income for members of firms with nine or more men is $21,500, versus $6,500 for two-man firms. The same general relationship between size of firm and annual income is reported for Chicago in: Leonard Kent, "Economic Status of the Legal Profession in Chicago" (unpublished Ph.D. dissertation, School of Business, University of Chicago, 1950).

The association between law school and early career outcome should not mislead us into exaggerating the influence of the individual law school on the allocation of careers. Indications are that law schools in selecting and placing graduates are themselves subject to social influences, and some of the processes involved in career differentiation operate through the law school system but do not originate there. Two types of data illustrate this interdependence: (1) initial differences between those recruited to the various types of law schools and (2) the mechanisms of "placement" in the transition to work, and the specific role of law school personnel in this crucial transition.

Those familiar with the competition among students for vacancies, and among schools for desirable students, will expect recruitment patterns to differ between the types of law schools. The Chicago law schools do not compete on equal terms in this market situation; the disparate attractions they have to offer result in differences between students, and thus in the characteristics of graduates who work in the Chicago area.[20] University graduates are something of an academic and socio-economic elite: they show higher social status origins, a heavier preponderance of Protestants, higher frequency of undergraduate degrees and good grades at well-known private colleges.[21] These prestige distinctions prove important on graduation—as one law school dean expressed it, "They have the 'North Shore look' they need to get into large La Salle Street firms." The statement is relevant, but perhaps "the look" was less crucial than the social claims these men could assert: one-third of them obtained their first position through the active intervention (sponsorship) of strategically-placed relatives and friends of the family. Their social position provided them with resources for building a career which antedated law school, but we can only guess at the complete independence of these resources. Without the legitimation of graduation from a prominent law school, they might have found their claims ineffective in the law firm system. The picture is one of social characteristics and career outcomes interwoven in a set of mutual expectations and definitions, for although the movement from university law school to work is not completely predictable, we can say that entering a larger law firm is a well-established pattern among its graduates.

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[18] The first four years after graduation show a steady decrease in the number of position changes so that by the fourth year very few moves are taking place. Employment in a company, as we have seen, is the most likely change within the law firm group. Private practitioners, if successful, can associate with other lawyers in a firm, but since this is usually at a senior level, it is a different career process than we find among those starting at the bottom of the law firm hierarchy. Several of the men employed in political positions planned to leave for private practice and were cultivating their government posts toward that end; those employed full-time in business seemed to be involved in gradually realigning their objectives and becoming company rather than professional men.

[19] The private practitioner group shows a marked preference, in evaluations of success, for men successfully self-employed in legal practice, and in this is joined by enough other members of the sample to make the high valuations by law firm men of a position similar to theirs a minority selection.

[20] These data must be seen as tentative since several processes intervene between initial entry and the point of interview. For the characteristics to be atypical, however, we would have to assume that drop-out in college and leaving Chicago operate in opposite ways in the various schools. For example, the academic differences would be atypical only if the better qualified left the independent schools and stayed on in the university schools. This is possible, but like the other differences and their possible effects, not highly probable. The dominant social types reported here were referred to as typical by the deans of the law schools. The drop-out problem is, of course, an important one, and is under study by Wagner Thielens of the Bureau of Applied Social Research at Columbia.

[21] Table 2.

TABLE 2

Summary of Selected Characteristics of Graduates of Three Types of Law Schools

Characteristic	*Number of cases in the sample*	*Type of Law School Attended*							
		University		*Catholic*		*Independent*		*Total*	
Mean Socio-Economic Score[a]	62[b]	14.7	[15][e]	11.3	[21]	10.8	[21]	12.1	[62]
Protestant	71[c]	33%	(8)[f]	9%	(2)	27%	(7)	24%	(17)
Attended "name" private college	72	79%	(19)	9%	(2)	4%	(1)	31%	(22)
Undergraduate grade average of "B" or better	62[d]	75%	(15)	83%	(15)	50%	(12)	68%	(42)
Obtained bachelor's degree	72	83%	(20)	50%	(11)	3%	(12)	47%	(34)

[a] The index was based on father's education, occupation, and income. A higher number indicates higher social standing.

[b] Scores could not be computed for ten respondents.

[c] One respondent failed to answer.

[d] In ten cases the data were unclear either due to no response or a grading system that could not be equated with the letter-grade system.

[e] Values inside brackets represent number of cases upon which corresponding mean score is based.

[f] Values inside parentheses represent number of cases represented by the corresponding percentage.

Rich contrast is provided by graduates of independent schools; their characteristics are anything but elite. Their social origins are generally humble, their schooling principally at junior colleges or local Catholic schools (two years of undergraduate work is the mode), and their academic records are inferior to those of other law school graduates.[22] They rarely possess the claims which allow entry to law firms, but do make use of special statuses in building a private practice. These men capitalize on ethnic, racial, and religious identities which provide unique advantages in competing for clients. The young man who bases his clientele on his father's Italian medical practice possesses resources distinct from his law school experience and perhaps more independent of law school than the social resources of university school graduates. Where sponsorship links the university man to law firm openings, the independent school graduate typically forges his own connections by enterprise, transforming claims into career resources.[23]

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[22] When asked why they chose their law schools, independent school graduates emphasized low cost and ease of admission as the chief bases for their decision.

The contribution of law schools to the placement of graduating students may be distinguished in terms of its directness; actions of school officials in finding positions and referring students to them can be seen as direct allocation, and the general legitimation provided by the school as indirect allocation. Each type of school shows a different profile in the kinds of allocations it features. Table 3 summarizes the way in which most daytime students located their first position.[24]

TABLE 3

Distributions of Types of Entry to First Position by Type of Law School Attended

Type of Entry to First Position	*Type of Law School Attended*							
	University		*Catholic*		*Independent*		*Total*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Law-school placement	7	32	9	64	2	14	18	36
Extra-school sponsor	7	32	1	7	2	14	10	20
Self-initiation	8	36	4	29	10	71	22	44
All	22	100	14	100	14	99[a]	50	100

[a] The total is less than 100 per cent because of rounding.

The three roads to work (sponsorship, school placement, and self-initiation) are found among university graduates in about equal proportion: almost two-thirds are assisted into their first positions. The law school makes direct allocations for one-third, leaves one-third to find their own way, and legitimates an additional third for law firm positions. Catholic law school graduates possess few claims to non-school sponsorship, but their alma maters play an important role in placing them in positions. Independent school men find their own first positions; the school plays a very limited role in the direct allocation of its graduates.

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[23] The social characteristics of Catholic school students place them between university and independent school graduates, and generally closer to the latter.

[24] Excluded are the night program students, who remained in their previous positions, and those few respondents securing a position in local government offices through political patronage.

In tracing through the connections between law school attendance, career development, and the transition into initial work roles, we find that law school is an important filter in the early allocation of young Chicago attorneys. The sample does not permit precise measurement of its specific influence (a large sample might produce such precision), but it is evident that law school both affects and is affected by the processes which differentiate the careers of these men. Law schools in Chicago are both creators and creatures of social differentiation.

LAW SCHOOL AND SOCIALIZATION

Few of us viewing an adept attorney at work can picture him a nervous, uncertain beginner. Yet all "pros" were once less than paragons of easy skill; the highly socialized member of a profession so plays his roles that they appear inseparable from him. But the beginner has much to learn before his self and his daily round conjoin; he must first perceive the multiple expectations that characterize legal roles, and he must acquire the complex skills needed to match those expectations. He must learn the values of his profession in general and in specific; he must puzzle through many dilemmas before experience results in moral decisiveness. He must act in the presence of others, perceive their evaluations of his performance, and find his assertions of identity confirmed. The development of a professional self-conception involves a complicated chain of perceptions, skills, values, and interactions. In this process, a professional identity is forged which is believable both to the individual and to others.[25] When we ask then, as we do in this section, what part law school plays in the professional socialization of its students, we seek to estimate its contribution to the transformation of a layman into a self-assured member of the legal "culture." Socialization here has nothing to do with the public control of productive resources—it has to do with the complicated processes involved in making a lawyer.[26]

The conditions and timing of professional socialization have shifted in the last hundred years in American legal education.[27] Office apprenticeship—the law school of an earlier era—introduced the neophyte to the principles of law and the principals-at-law simultaneously. In "reading" law, the apprentice combined theory and implementation in a gradually expanding responsibility. He became a lawyer as he saw and assisted in real cases, in concrete situations, and with specific personalities. Exposed to live models of practicing attorneys and clients, he possessed realistic bases for learning the lawyer role. He coupled this increasing awareness with the gradual assumption of the rights and obligations of a member of the bar. Technical knowledge, prevailing practices, and professional values were articulated one step at a time.

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[25] The underlying conception of the self-concept employed here is that stemming from the work of George Herbert Mead and Charles Horton Cooley. See especially G. H. Mead, *Mind Self and Society* (Chicago: University of Chicago Press, 1946), and C. H. Cooley, *Human Nature and the Social Order* (New York: C. Scribner's and Sons, 1902).

[26] For a clear presentation of the concept of socialization, see: R. Merton, G. G. Reader, and P. L. Kendall, *The Student-Physician* (Cambridge, Mass.: Harvard University Press, 1957), Appendix A.

[27] Harno, *op. cit.*, and Hurst, *op. cit.*

Today what was once concurrent experience is serial. For three years the young attorney, studying in a special school, is isolated from the market place of legal services, and he often graduates without any contact with real legal work. His school environment provides small opportunity to witness the varieties and subtleties of lawyer roles, and although his knowledge of legal principles probably exceeds that of his nineteenth century predecessor, he graduates with minimal knowledge of the procedures and institutions of practice. The social skills necessary for successful practice with anxious clients and clever rivals is *terra incognita* to those who do not supplement their law school program with legal employment.[28] The law school curriculum provides little opportunity for students to learn and wrestle with the values that must be resolved in everyday practice. One of the most striking omissions is the absence of occasions on which students can actually play the role of lawyer. A few moot court performances before fellow students hardly equal the commitment to interaction in the professional role that we find in medical schools, teacher training programs, or schools of social work. No real clients are served and no real cases are handled by law students prior to graduation.

A schooling so removed from everyday realities leads us to question the strength of its impact on the self-conception of students. Two kinds of data—on role perceptions and skill acquisition—are available to deal with this question. First, we have the respondents' review of their successive images of law as *work* from their first recollection to the present and the effect of law school on those images. Secondly, respondents expressed their views freely on the proper function of law schools and evaluated their legal training.

Hughes' thesis that professional education involves the replacement of stereotyped images by more subtle, complex and even ambiguous perceptions of the professional role finds support in these data.[29] Analysis of the modal images held of law as work discloses the gradual replacement of an exotic and dramatized image by one which takes account of routine and pedestrian elements. The dominant initial image—"the courtroom version"—is highly theatrical. Content analysis reveals the recurrent themes of an advocate contesting in the defense of a man wrongly charged of a serious crime; the scene is one of electric tension, and resolution is through the almost magical powers of a passionate lawyer showing his mastery of the sudden switch, the devastating deduction, the moving plea. The image is a prism of potent American values (courage, association with the right, pragmatic brilliance) and human motives (narcissism, messianic duty, masculine aggression) of no less power. Perhaps the crucial attribute of the image is its charismatic rather than routine quality—it is the antithesis of the prosaic.

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[28] Most sample members did not engage in legal work prior to graduation, but those who did, either in civilian or military life, did so apart from the law school program of study. Many mentioned its great value to them in beginning practice. One respondent conducted several hundred trial defenses while in service and was able to join a firm of top-level trial specialists on the basis of this experience.

[29] E. C. Hughes, *Men and Their Work* (Glencoe, Ill.: The Free Press, 1958), see especially chap. ix.

The overt elements of the image are, as we might expect, somewhat unstable through time; half of those describing the image as their initial view state that it had changed somewhat before entry to law school. The changes that occurred before and during law school are similar—the young lawyer-to-be realizes that there are other than courtroom roles open to lawyers, and that even those who do work in courts do so only part of the time. Changes prior to law school graduation are primarily external, referring to descriptions of the various roles played by lawyers. A subsidiary theme in changes during law school is the gradual realization that law work is both difficult and taxing.

There is, however, a latent content which apparently persists until the young lawyers face the demands of practice. Asked for the principal changes in the image that occurred after law school graduation, the largest percentage stressed that the tasks they do as practitioners are not what they expected upon graduation. The tasks are different primarily in the way they strike the respondents—they are "more routine," "more difficult," and "less intellectually stimulating." Other responses indicate surprise at finding themselves ill-prepared for the "mechanics" of law, their lack of preparation for the problems of establishing a career, and considerable shock is expressed on discovering the ethical and moral practices within the profession. Elements of glamor, facility, and idealism persist in the image until first-hand contact with legal work; it takes contact with actual practice to bring full recognition that law work is mundane, laborious, and not necessarily idealistic. Nor was knowing what to do for a client enough; first one must acquire the client.

The second set of data—the respondents' evaluations of law school functions and performance—points to limited opportunity to acquire the skills basic to the practice of law. Around two-thirds of the men answered an open-ended question on the proper function of law school with definite answers that it should "prepare for practice."[30] Two-thirds urged revision of the curricula of the schools they attended towards more "practical" in-

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[30] See Table 4.

TABLE 4

Distributions of Respondents View of Proper Function of Law School by Type of Law School Attended

Respondent View of Proper Function of Law School	*University*		*Catholic*		*Independent*		*Total*	
	N	%	*N*	%	*N*	%	*N*	%
1. Law School should provide *practical* training	10	42	15	68	21	81	46	64
2. Law School should provide *theoretical* training	12	50	6	27	3	12	21	29
3. Other and no response	2	8	1	5	2	8	5	7
All	24	100	22	100	26	101[a]	72	100

[a] The total is more than 100 per cent because of rounding.

struction. Many suggestions for improvement were made, but the dominant theme throughout is a demand for more training in the technical and social skills required in practice. The statement "I wasn't prepared" is made over and over again. Behind this plaintive cry one senses the disorientation and embarrassment experienced by men who were *formally* qualified to practice law, yet forced to reveal inadequacies, ignorance, and confusion before clients, employers, and friends. If we are correct in assuming that the self-concept crystallizes only where role performance is undertaken in a psychologically meaningful context, the law school years provide minimal opportunity for this development. Furthermore, its products complain in large numbers that they lack the skills—technical and social—needed to play even the beginner's role.

The testimony of these young lawyers on what they learned in law school (and what they wished they had learned there) lends weight to the belief that law school had a limited and partial impact on them and their socialization into the realities of the profession. In the main, they left law school with a hazy and incomplete conception of what lawyers' work consists of. Ironically, they were thus ready for a wide variety of possibilities, for they were free from the domination of any one view held dearly and in detail. Since they did not have a grasp of what it took to do law work, they were forced to learn in terms of the positions they found themselves in after graduation—law became, essentially, the tasks they had to do in their first position or positions. They had to learn, as well, under the particularly powerful influence of doing so while earning a living and establishing a career, and lessons learned under those conditions, one suspects, have a peculiar vitality and subsequent hold on the learner. It appears very much as if laymen become lawmen only partially in law school and that the important transformations take place in the hurly-burly of work after graduation.[31]

INTERPRETATION

The American legal profession manifests an unusual combination of social characteristics: high social and economic rewards for the members of the profession, a steady supply of eager recruits, and relative ease of admission to formal membership in the guild. The latter is rarely found where the first two prevail; professions so favored generally feature numerous obstacles placed carefully in the path of the would-be member. In our research, and in American law generally, we find that men of limited wealth and academic stature gain access to the profession's ranks. This pattern reflects, in our opinion, the peculiar history and position of American lawyers and sets the context for the allocative and socializing functions of the law school.

In America the legal profession has faced a special pressure not exerted on most occupational groups of high prestige—the public has always expressed concern with the accessibility of legal institutions and the accessibility of the status of lawyer.[32] The "license" under which law operates in this country is the tacit understanding—now firmly established in the ladders available to those of limited means—that entry to the legal profession will not be controlled by social or economic privilege.[33] This sentiment reached its zenith in the days of Jacksonian Democracy, but we find it embedded in our current institutions; even today we find judgeships for which legal training is not a prerequisite. The existence of evening schools is an important social fact for it provides effective implementation for the values involved. We see indications that such facilitation of access to law has strong support—ideologically, politically, and economically. Evening schools, for example, are upheld in newspaper editorials as guardians of our open society despite their label, in some professional quarters, as "problem children" of legal education.[34] Independent schools now number among their graduates and directors men in legislatures, high judicial office, and other positions of power or wealth. Economically, law schools can maintain themselves without the heavy subsidies called for in medicine and engineering for provision of minimal law schooling (i.e., straight teaching without the additional activities of legal research) can be handled relatively cheaply—no expensive laboratories are involved in this generally "low overhead" type of professional training. Economic considerations are such that large annual classes are graduated in the most aristocratic legal training institutions.

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[31] To say that law school is but a beginning of professional socialization is *not* to say that the beginnings made in all law schools are identical. The dominant themes discussed above were general, and statistically predominant, but additional themes were found in one type of school and not in another. Movement from university to law firm appears to be continuous both in terms of role-set and values. The student may relate to senior partners as to his professors, to other associates as to former colleagues and competitors, and may actually do the same library tasks he performed in law school. University men talk of law school as intellectually exciting (on occasion) and as raising their appreciation of law's importance—these themes are consistent with the law firm definition of success as within the core of law and as based largely on professional competence.

The student leaving independent law schools, on the other hand, leaves teachers who were engaged in private practice and a peer culture which apparently stressed learning "the tricks of the trade" and the general usefulness of law in business and government. The consistency again appears in these themes; high valuation of monetary success is aligned with a recognition of the generality of legal training and a fluid approach to the pursuit of one's ambitions for financial gain. We also find that independent school graduates, generally deprived of the law firm man's apprenticeship, are most agreed on the need for more practical law school training. University men are more likely to defend a strictly theoretical curriculum, but this association is reversed where they enter private practice rather than firms. This suggests that career outcome may be an important factor in the graduate's evaluation of law school. The writer suspects that the key variable here is access to or denial of an apprenticeship where older lawyers guide the neophyte.

[32] Hurst, *op. cit.*

[33] For a statement on the concepts "license" and "mandate," see: E. C. Hughes, "The Study of Occupations," *Sociology Today* (eds.) R. K. Merton, L. Broom, and L. S. Cottrell (New York: Basic Books, Inc., 1959).

The mandate of the legal profession, on the other hand, is not as broad as one might expect from the importance of legal institutions in our nation. Millions of Americans make infrequent or no use whatever of lawyers in their lifetimes.[35] The result is that legal work is limited—the number of practices, especially in "core law,"[36] is exceeded by the supply of men, certified as lawyers, available to perform them. It is this surplus, created by a license calling for easy entry and a mandate yielding limited work, that lawyers have in mind when they refer to the "overcrowding" of their profession. But allocations must be made and are; through informal means (sponsorship) and means generally viewed as "fair" (academic performance), the profession selects some for core positions and leaves others to the devices of enterprise. There is no head-on collision with the American demand for an open and accessible bar.

Problems remain, however, with such allocations. Were all those formally admitted determined to practice core law, their exclusion from it might well produce discontent sufficient to place the system under heavy strain. Yet we find little attack on the way these allocations are made. Men undertaking entrepreneurial careers uphold their course with zest and vigor—a subtle alchemy prevails whereby these men assume the values appropriate to their fate.

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[34] The Survey of the Legal Profession, conducted by the American Bar Association, cites evening and correspondence schools as "problem children." Blaustein and Porter, *op. cit.*, pp. 176-181.

[35] Blaustein and Porter, *op. cit.*

[36] "Core law" refers to work where legal principles are applied and other tasks unique to the lawyer are involved. Much practice consists of general business activity, and this is especially so in the work of private practitioners and men employed as lawyers in business and government.

Those urging revision of the training of lawyers, particularly in the direction of more practical instruction, have met with little success. Perhaps the profession's resistance is related, consciously or not, to the adjustment between the allocative mechanisms and the timing of socialization. By relegating major socialization to the years *after* law school, the legal system avoids many problems. The men most likely to continue careers in core law are socialized once their careers have already begun; they are selected first, so to speak, and inducted later. Those least likely to build careers within the core of law show limited or no apprenticeship under senior colleagues. Faced with the need to earn a living in a competitive business system, they form expectations consistent with the demands they must meet. The flexibility we noted earlier among law school graduates facilitates the process of differentiation. Career opportunities, distributed unevenly, coincide with key socializing experiences and thus differences are not defined as serious inequities. Longings which the system of work cannot fulfill do not develop; flexible men are free to follow the market.

If the preceding analysis be correct, the legal training system is functionally and structurally articulated with the current social organization of legal work. Effective change in legal education cannot be undertaken without realizing this inter-relationship and giving thoughtful attention to the broader goals of the legal profession in our society.

Sex Role and the Career Orientations of Beginning Teachers*

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THERE HAS BEEN CONSIDERABLE CONCERN in recent years with the shortage of qualified public school teachers, particularly at the elementary level. This situation has been brought about by a number of complex and interrelated factors. These include: (a) the imbalance between the low birth rate of the 1930's and the high birth rate since 1945, resulting in fewer college-age students to be prepared as teachers just at the time there are more students to be taught; (b) trends toward earlier marriage and earlier motherhood; (c) military service requirements; (d) strong competition from other occupations for trained manpower; and (e) the relatively low pay and social status accorded to public school teachers.

There are at least two approaches for bringing the supply of qualified teachers into line with the demand. The first is to train a higher proportion of college graduates for teaching careers and to obtain their actual entry into teaching. There are rather obvious limits to this approach. In recent years both the number and proportion of college graduates meeting state certification requirements have increased so that today about one college graduate out of three is prepared to enter the classroom.[1] Similarly, three out of four of those prepared take teaching jobs the year after college graduation.[2] It would appear that little more can be expected by way of a larger proportion of our skilled manpower entering teaching without creating manpower shortages in other areas.

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[1] National Education Association, *The Postwar Struggle to Provide Competent Teachers* (Washington, D. C.: National Education Association, 1957), p. 109.

[2] National Education Association, *Teacher Supply and Demand in Public Schools, 1959* (Washington, D. C.: National Education Association, 1959).

The second approach is to utilize more efficiently those who have already been trained and qualified as teachers. One of the factors indicative of the efficiency of manpower utilization is the rate of leaving the profession. A recent study by the U. S. Office of Education indicates an annual rate of loss among classroom teachers of 10.9 per cent.[3] In the study reported here, it was found that *half* of the teachers teaching for the first time in 1956-57 expected to leave teaching, either temporarily or permanently, within five years. Similarly, in a study of 1,000 University of Illinois graduates qualified to teach, Charters found that over a ten-year period, 40 per cent did not teach at all; of those who entered teaching, half had dropped out after two years; and that of the 2,400 man-years of teaching produced, 50 per cent was produced by 12 per cent of the graduates.[4] An important contribution could be made, then, by identifying some of the factors related to the career decisions of teachers and identifying the characteristics of those who would, over a lifetime, contribute the most years of teaching service.

Our purpose in this paper is to study the career orientations[5] of a special sub-group of teachers, namely teachers just beginning their careers. Role concepts provide a useful approach to the problem.[6] We are, of course, studying an occupational role. Our thesis is that an understanding of the career orientations of teachers must start with the relationship between sex role and occupational role. Of course many factors are ultimately related to career orientation, but the effect of these variables is generally mediated by the sex role. Certainly we would expect that maternity and childrearing responsibilities have massive effects in differentiating the career patterns of men and women, and such important differences in life-situation would have wide ramifications. For example, we would expect that the importance of salary in determining career plans is quite different for men and women. While men are generally breadwinners for a family, women most often are providing only for themselves or else their salary represents a supplementary family income. This is a complex area, and many relationships need to be studied. However, within the limits of this paper it will be possible to study only some first-order relationships between sex role and career orientation, together with the influence of sex role on the relationship between job satisfaction and career orientation.

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[3] Ward S. Mason and Robert K. Bain, *Teacher Turnover in the Public Schools: 1957-58* (Washington: U. S. Government Printing Office, in press).

[4] W. W. Charters, Jr., "Survival in the Teaching Profession: A Criterion for Selecting Teacher Trainees," *Journal of Teacher Education,* VII (September, 1956), pp. 253-55.

[5] We use the term "career orientations" as a general term to denote specific career plans, occupational attitudes, and occupational values.

[6] See for example "A Language for Role Analysis," chap. iv in Neal Gross, Ward S. Mason, and Alexander W. McEachern, *Explorations in Role Analysis: Studies of the School Superintendency Role* (New York: John Wiley & Sons, Inc., 1958).

THE SURVEY DESIGN

This paper will report some data from a survey of beginning public school classroom teachers conducted by mail in the Spring of 1957.[7] The sample design called for a 10 per cent systematic probability sample of the beginning teachers in the nation. The general procedure was to select a sample of school districts, stratified by pupil enrollment. The districts so chosen were asked to supply the names and addresses of their beginning teachers. The teachers on these lists were then sampled in turn; there was thus a two-stage sample. Sampling rates varied from stratum to stratum in each stage, but were always such that within a given stratum the product of the school district and beginning teacher sampling rates was equal to .10. In this way, each beginning teacher in the nation had an equal probability of selection.[8]

The population of school districts sampled in the first stage was defined as public school districts in the continental United States maintaining any grades from kindergarten through grade twelve, excepting schools operated by the federal government or directly by a state.[9] In the second stage, a beginning teacher was defined as "a regular full-time teacher who devotes half or more of his time to classroom teaching at any level from kindergarten through grade twelve who has not held a regular full-time paid position for a full term prior to the current school year (1956-57) in any school system."[10]

Usable replies were received from 7,150 beginning teachers, or 89 per cent of those to whom questionnaires were sent. This number was estimated to comprise 84 per cent of the total number of teachers specified by the sample design.[11] Such a high rate of response minimizes the effect of non-response bias. To test for non-response bias, respondents were compared with non-respondents using information available for both groups. This information was on sex, teaching level, pupil enrollment of the teacher's school district, and marital status of women teachers. Differences between respondents and non-respondents on these characteristics were large enough to be statistically significant, using the Chi-square test, with the exception of the difference with respect to pupil enrollment of the teacher's school district. However, the proportion of non-respondents was so low that their somewhat atypical nature had little effect on the representativeness of the returns with respect to the characteristics mentioned. For example, although 37 per cent of the respondents were men while only 29 per cent of the non-respondents were men, the proportion of men in the entire sample of beginning teachers was 36 per cent, which is only one percentage point less than the proportion among the respondents. With respect to any characteristic, then, the amount of bias among the non-respondents would have to be large to bring into question the representativeness of the returns.

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[7] Some preliminary findings of this survey are reported in Ward S. Mason, *The Beginning Teacher: A Survey of New Teachers in the Public Schools, 1956-57*, U. S. Office of Education Circular No. 510 (Washington: U. S. Government Printing Office, 1958).

[8] In applying tests of statistical significance to this sample we are aware that we are using formulas designed for simple random sampling with a systematic, stratified, and clustered sample. The proper formulas are unknown, and it seemed useful to make the tests with the formulas available, noting that the results must be qualified by this reservation. The .01 level of significance has been used throughout.

[9] Five public school districts which reported that they were staffed by members of a religious order were later eliminated from the sample.

[10] This definition appeared on the form sent to school districts, together with some more specific instructions concerning the inclusion or exclusion of certain borderline cases.

[11] This is an estimated response rate because the number of beginning teachers among non-respondent school districts was unknown and had to be estimated.

The questionnaire contained eight pages of items on such matters as social origins, qualifications for teaching, teaching assignment, economic status, job satisfaction, occupational values, and career plans.

CAREER ORIENTATION AND SEX ROLE

Teaching is an occupation in which large numbers of both men and women are to be found. Many occupations can be said to be either "men's occupations" or "women's occupations," and in studying them it is reasonable to start with an assumption that sex role is a constant factor. Although teaching is thought of popularly as a woman's occupation, actually at least one out of four public school teachers is a man, and among the beginning teachers reported on here, 36 per cent were men.

It is, of course, a commonplace that men and women have different degrees and kinds of involvement in the occupational system. Almost without exception, men engage in an occupation even though they might not have to from an economic standpoint, and most of them sooner or later have families to support. Although there is a minority of women both single and married who have strong commitments to their jobs, most women enter the occupational world only as a short adventure between school and marriage, or else they work as a means of supplementing the family income.

These considerations are fully applicable to the beginning teachers studied in the present survey. Table 1 shows that, when asked about their career plans, fully 70 per cent of all the women said they expected to leave teaching some time in order to become homemakers. These are divided between the 58 per cent who hoped to return to teaching later and the 12 per cent who did not plan to return. Only 16 per cent expected to teach continuously until retirement. If we combine this latter group with the 58 per cent who expected to return to teaching from homemaking, we have 74 per cent of the women with at least a partial or contingent commitment to teaching. Only 9 per cent of the women beginning teachers expected to move to non-teaching educational positions, and 6 per cent expected to leave for non-educational employment.

The men show a completely different pattern in their career plans. Of course, the homemaking alternatives do not apply, and their answers are

TABLE 1

Percentage Distributions of the Career Plans of Men and Women Beginning Teachers

Career plan[a]	*Men* (*N*=2,602)	*Women* (*N*=4,548)
Committed to education		
Expect to continue teaching *until retirement*	29	16
Expect to leave teaching in order to devote my time to *homemaking:* WOULD want to return to teaching later	–	58
Expect to continue in the field of education until retirement, but hope to move from classroom teaching into some *other area of education* eventually	51	9
Total	80	83
Non-educational plans		
Expect to leave teaching in order to devote my time to *homemaking:* WOULD NOT want to return to teaching later	–	12
Expect to leave education for *another occupation*[b]	19	6
Total	19	18

[a] Italics added for emphasis. They did not appear in the original questionnaire.
[b] Includes "other non-educational plans."

NOTE: Due to rounding the percentage totals do not add to 100.

completely within the occupational area. Only 29 per cent of the men expected to teach continuously until retirement. The most frequently expressed ambition of the men was to "continue in the field of education until retirement, but . . . move from classroom teaching into some other area of education eventually." In all, 51 per cent of the men made this choice. Another 19 per cent expected to leave education for another occupation. Thus, most men do not see teaching as a terminal occupation or career, but as a stepping stone to some other position, either in or out of education. It is virtually impossible for all of the men who expressed the ambition to enter non-teaching educational positions (mostly administrative and supervisory positions) to achieve this goal. Those who do not succeed in making this move may remain as teachers, but others may leave for other occupations when they find their path of mobility blocked. The fact previously mentioned, that despite the heavy inroads which homemaking makes among the women teachers, the proportion of men among the total teaching population is much smaller than the proportion of men among the beginning teachers, may indicate a heavy exodus of men to either non-teaching or non-educational positions or both.[12]

CAREER PLANS AND PROFESSIONALIZATION

The most frequently expressed plans of men and women beginning teachers as indicated in the previous section have, in different ways, implications for the professionalization of teaching. Our purpose here is not to present a full analysis of teaching as a profession, but merely to make some inferences from the findings on career plans.

One of the hallmarks of the full professions (e.g., law or medicine), it may be suggested, is that the occupational role is institutionalized as the dominant role in the sense that, in conflicts between the role expectations of the occupation and those of some other social role, the occupational demands are given precedence. For example, a doctor would be expected to leave a family gathering to attend to an emergency case. Our findings regarding career plans indicate that, for most women, teaching is a contingent role rather than a dominant one: they will teach *if* they do not marry, *until* they have children, *when* the children are all of school age, *if* their husband's job takes them to a community that has an attractive teaching vacancy, etc. This situation makes it difficult to build up and maintain professional organization and standards. As Lieberman has commented,

> It should be obvious that the fact that so many women teachers drift in and out of teaching means that it is very difficult for teachers to achieve occupational solidarity. The woman teacher interested chiefly in marriage and a home is not likely to take a strong interest in raising professional standards and in improving the conditions of teaching. Indeed, such women are frequently opposed to raising professional standards; such action runs contrary to their personal long term interests. The difficulties of building a strong professional teachers' organization should be manifest. The turnover in membership is apt to be so high that teachers' organizations must spend a considerable portion of their resources just to maintain stable membership.[13]

None of this is intended to disparage the professional commitment of the many individual women teachers who are thoroughly devoted to their work. Nevertheless, a contingent commitment is a central tendency for women beginning teachers, as it probably is for women in most occupations, and this tendency very likely inhibits the development of the professionalization of the occupation.[14]

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[12] However, at least part of the difference is accounted for by the lower proportion of men recruited in previous years.

[13] Myron Lieberman, *Education as a Profession* (Englewood Cliffs, N. J.: Prentice-Hall, 1956), p. 253.

[14] For the impeding effects of contingent commitment on organized efforts to professionalize another occupation, see Robert K. Bain, "The Process of Professionalization: Life Insurance Selling" (unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1959).

Another characteristic of the professions is that they are terminal occupations or careers. It is probable, for example, that few physicians aspire to become hospital administrators; being a physician is a career in itself. But the large number of men beginning teachers who expect to leave the classroom for administrative and supervisory positions, not to mention those who plan to leave education altogether, makes it appear that for many men the teaching phase of their job history is likely to be rather transitory. Of course it might be argued that if we spoke of "educators" rather than "teachers" the career orientations of men would appear in quite a different light. However, our interest in this paper is with teaching *per se* and the availability of qualified personnel *in the classroom*. That many men remain in education as administrators in no way results in maintaining staffs of classroom teachers. Furthermore the roles of teachers, principals, superintendents, supervisors, and the rest are too diverse to be assimilated to a single category except for the most general purposes.[15] Thus, in different ways, the most common career orientations found among men and women beginning teachers are impediments to the establishment of teaching as a full profession.

INTRINSIC AND EXTRINSIC FACTORS

If the occupational role is the dominant role for men but not for women, it should follow that the occupational plans of men would depend more on factors *intrinsic* to their work—for example, nature of supervision, opportunity for advancement, working conditions, and so on—while the occupational plans of women should depend more on factors *extrinsic* to their work—for example, marital plans, or the age of their children. Evidence is available regarding this hypothesis from a question which asked, "Regardless of the likelihood of your leaving teaching within the next five years, under what conditions would you leave voluntarily (or for what reasons do you expect to leave)?"[16] Data for this item are shown in Table 2. The two extrinsic categories used to code responses to this open-ended question were "family reasons" and "depends on another person." The predominantly female concern with these factors is apparent. The intrinsic categories are "pay," "social status," "working conditions," and "if teaching is no longer satisfying." Some of these reasons are mentioned by only a small proportion of either sex, but the strong male concern with pay and working conditions is striking, and the differences between the sexes are in the expected direction in all cases. The other categories cannot be readily classified as extrinsic or intrinsic.

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[15] For a discussion of education as a unitary profession, see Lieberman, *op. cit.*, pp. 152-56.

[16] This question followed one which asked, "What is the likelihood of your leaving classroom teaching within the next five years?"

TABLE 2

Percentage Distributions and Comparisons of the Reasons and Potential Reasons for Leaving Teaching Given by Men and Women Beginning Teachers[a]

Reasons for leaving	*Men* (*N*=2,602)	*Women* (*N*=4,548)	*Difference*[b]
Extrinsic reasons			
Family reasons	1.6	68.2	66.6*
Depends on another person	1.2	12.3	11.1*
Intrinsic reasons			
Pay, salary, standard of living, etc.	49.8	5.2	44.6*
Social status of teaching	2.2	0.5	1.7*
Working conditions	11.5	3.4	8.1*
Personal failure in teaching	2.2	1.2	1.0*
Lack of satisfaction from teaching	3.4	1.8	1.6*
Not classifiable as intrinsic or extrinsic			
Enter another occupation	40.5	11.5	29.0*
Return to school	4.8	4.0	0.8
Highly hypothetical condition not elsewhere classified (e.g., "If I were to inherit a great deal of money")	2.3	4.3	2.0
Other	9.1	3.9	5.2*

[a] The subjects were asked to respond to the following question: "Regardless of the likelihood of your leaving teaching within the next five years, under what conditions would you leave voluntarily (or for what reasons do you expect to leave)?"

[b] Differences marked with the asterisk are significant at the .01 level. A one-tailed *t*-test was used for the extrinsic and intrinsic reasons, for which an hypothesis was available. A two-tailed *t*-test was used for the remaining reasons, for which no hypothesis was available.

NOTE: Due to the fact that the subjects were allowed to give more than one reason the totals of the percentages do not equal 100.

A corollary of this hypothesis is that the relationship between the degree of job satisfaction and career plans should be higher for men than for women. Teachers were asked to rate 22 specific aspects of their teaching position on a four-point scale from "very satisfactory" to "very unsatisfactory." Fifteen of these items were used to form an H-technique Guttman scale with five contrived items.[17] The reproducibility of the scale is .93.

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[17] For a discussion of this scaling technique, see Samuel A. Stouffer *et al.*, "A Technique for Improving Cumulative Scales," *Public Opinion Quarterly*, XVI (Summer, 1952), pp. 273-291.

Table 3 shows the relationship between these satisfaction scale scores and career plans for men and women separately. The fact that the women have two categories of career plans not available to the men creates a problem of analysis. The degree of relationship in each of the two parts of this table has been measured by use of Tschuprow's coefficient, or *T*, which is a contingency coefficient with a maximum value of 1.0 for tables with an equal

TABLE 3A

Percentage Distributions and Tests of Significance of Career Plans of Men Teachers as Related to Job Satisfaction
(N=2,602)

Job satisfaction scale score		*Teach until retirement*	*Stay in education but not teaching*	*Leave for new occupation*[a]	*Leave for Homemaking*	
					Would return	*Would not return*
(high)	5 (N=265)	41	50	9	—	—
	4 (N=269)	39	54	7	—	—
	3 (N=372)	31	53	16	—	—
	2 (N=579)	29	52	19	—	—
	1 (N=636)	24	52	24	—	—
(low)	0 (N=481)	21	48	30	—	—

$X^2_{10} = 2230$ P = .001 T = .53

[a] Includes "other non-education plans."

NOTE: Due to rounding the total percentages do not necessarily equal 100.

TABLE 3B

Percentage Distributions and Tests of Significance of Career Plans of Women Teachers as Related to Job Satisfaction
(N=4,548)

Job satisfaction scale score		*Teach until retirement*	*Stay in education but not teaching*	*Leave for new occupation*[a]	*Leave for Homemaking*	
					Would return	*Would not return*
(high)	5 (N=749)	18	7	3	58	13
	4 (N=791)	19	8	4	60	9
	3 (N=875)	17	8	5	60	10
	2 (N=1,021)	15	8	5	58	13
	1 (N=676)	10	10	7	57	16
(low)	0 (N=436)	12	13	11	49	16

$X^2_{20} = 3465$ P = .001 T = .42

[a] Includes "other non-education plans."

NOTE: due to rounding the total percentages do not necessarily equal 100.

number of rows and columns.[18] In the present case, T for the men is .53, and for the women it is .42, which indicates a higher relationship for the men, as expected. Unfortunately, the sampling distribution of T is unknown and therefore we cannot compute the significance of the difference between the two measures. However, in view of the large number of cases on which the findings are based, we shall tentatively accept the proposition that the career plans of men are more highly related to their job satisfaction than are those of women beginning teachers.

An interesting pattern is observable in Table 3. Although the job satisfaction of men beginning teachers is highly related to their intention either to teach until retirement or to leave education for another occupation, the relationship to going into a non-teaching job in education is much weaker. This latter relationship also shows a slight tendency to be curvilinear, with both the most and least satisfied men teachers being less likely to choose this alternative. Among the women, however, the more dissatisfied they are with teaching the more likely they are to seek an administrative post. This suggests that when dissatisfied with teaching, men have more alternative occupations from which to choose and are more likely to think of an occupation outside of education; on the other hand, the less satisfied women have a more restricted perspective and think in terms of a move into other educational positions as an escape from teaching.

At the outset it was mentioned that teaching is often thought of as a woman's occupation. It is clear from the data that women beginning teachers have higher job satisfaction than men. On every one of the 22 questionnaire items dealing with the teacher's job satisfaction, the percentage of women replying "very satisfied" was higher than for men, and the higher satisfaction of the women on the satisfaction scale is statistically significant. Because women are less concerned with factors intrinsic to their work, it may be that they make fewer demands on their jobs and thus are more easily satisfied. Other studies indicate that women are more satisfied than men in other occupations as well.[19]

OCCUPATIONAL VALUES AND SEX ROLE

We have emphasized the differences in satisfactions and career plans between men and women beginning teachers. It is especially interesting that these differences exist despite a considerable amount of selectivity[20] in the recruiting process.

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[18] A description of Tschuprow's coefficient may be found in G. Udy Yule and M. G. Kendall, *An Introduction to the Theory of Statistics* (New York: Hafner Publishing Company, 1950), pp. 52-57.

[19] Lawrence G. Thomas, *The Occupational Structure and Education* (Englewood Cliffs, N. J.: Prentice-Hall, 1956).

[20] By "selectivity" or "the selection process," we refer to the entire process by which persons qualify for and enter an occupation. This is, of course, both a matter of self-selection and institutional selection.

One of the major clues to the process of occupational choice is the occupational values which people hold. What are the important things which people hope to find in an occupation? We are fortunate in having some comparative data available in this area. In a study of the occupational values of college students, Morris Rosenberg had a sample of 2,758 Cornell University students rate a set of ten values as high, medium, or low in importance as criteria for "an ideal job or career."[21] Comparable data were obtained for the beginning teachers in our sample. The results, in terms of the percentage rating each value high, are shown in Table 4 for men and women separately in each sample.

First, let us note that Rosenberg had found that there were several sets of these values which were similar and could be grouped together. The items involving "people rather than things" and being "helpful" he called *people-oriented values;* the three dealing with "money," "status," and "security" he called *extrinsic reward values;* and the two reading "provide an opportunity to use my special abilities and aptitudes" and "permit me to be creative and original" he called *expressive values.*

The selection process is highlighted in several ways in Table 4. In the first place, the occupational values of the beginning teachers, who have already entered an occupation, are quite different from those of the college students, who were planning to enter many different occupations. For the men the difference between students and teachers is statistically significant for all ten items, and for the women the difference is statistically significant for eight out of the ten items.

Teaching is clearly an occupation which attracts those with high people-oriented values; the beginning teachers chose both of these items in much higher percentages than did the college students. On the other hand, the percentage placing a high value on earning a great deal of money was lower among the teachers, especially among the men. Of the remaining values, the biggest differences involved the relatively high value placed by teachers on leadership and being creative and original.

The differences in occupational values of men and women are also of interest in this table. Some rather large differences in the values of men and women students can be seen, and all ten differences are statistically significant. The two people-oriented items, which are highly valued by teachers, are seen to be primarily feminine values (that is, held more often by women) in the general student population, while the extrinsic rewards items are primarily masculine values.

Of primary importance here are the disparities in these sex differences between the students and the teachers (see the last column of the table, labelled "difference in heterogeneity"). Our hypothesis was that, as a result of

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[21] Morris Rosenberg, *Occupations and Values* (Glencoe, Ill.: The Free Press, 1957).

TABLE 4

Percentages and Comparisons of Men and Women Cornell University Students and Beginning Teachers Rating Occupational Values High

Occupational value[a]	*Cornell Students*[b] *Men (N=2,008)*	*Cornell Students*[b] *Women (N=750)*	*Difference*	*Beginning Teachers Men (N=2,602)*	*Beginning Teachers Women (N=4,548)*	*Difference*	*Difference between students & teachers Men*	*Difference between students & teachers Women*	*Difference in heterogeneity*[c]
People-oriented values									
Give me an opportunity to work with *people* rather than things	39	59	−20*	69	79	−10*	−30*	−20*	−10*
Give me an opportunity to be *helpful* to others	37	53	−16*	80	85	−05	−43*	−32*	−11*
Extrinsic rewards									
Provide a chance to earn a good deal of *money*	36	19	+17*	21	17	+04*	+15*	+02	−13
Give me a social *status* and prestige	25	15	+10*	31	30	+01	−06*	−15*	−09*
Enable me to look forward to a stable *secure* future	63	51	+12*	68	67	+01	−05*	−16*	−11*
Self-expression									
Provide an opportunity to use my *special abilities* and aptitudes	78	80	−02	81	81	—	−03*	−01	−02
Permit me to be *creative* and original	49	54	−05*	62	68	−06*	−13*	−14*	+01
Other values									
Leave me relatively *free of supervision* by others	46	40	+06*	29	27	+02	+17*	+13*	−04*
Give me a chance to exercise *leadership*	38	29	+09*	56	45	+11*	−18*	−16*	+02
Provide me with *adventure*	14	17	−03*	22	27	−05*	−08*	−10*	+02*

[a] Italics added here for emphasis; they did not appear in the original questionnaire.

[b] Rosenberg, *op. cit.*, p. 49.

[c] A negative sign indicates a smaller difference between men and women in the teacher sample than in the student sample.

NOTE: The asterisk is used to indicate those differences which are significant at the .01 level.

the selective process, the occupational values of men and women would be more similar among the teachers than among the students. We find that the differences are in the expected direction in seven of the ten items. For six of these seven, the differences are statistically significant, while none of the differences contrary to the hypothesis is significant.

Some of the patterns in these shifts are noteworthy. We have seen that the people-oriented values are feminine values and are values of importance to the teachers generally. Although both men and women teachers are much higher than the students on these values, the greater similarity between the two sexes is a result of the greater difference between men students and men teachers. On the other hand, the extrinsic-rewards items were more important to men than women in the college group. On the money item, the smaller difference between the sexes occurs through the selection of men as beginning teachers who place a relatively low value on earning a great deal of money. The pattern for the other two extrinsic-rewards items, status and security, is quite different. These, too, tend to be masculine values, but the smaller sex difference occurs through the selection of women beginning teachers who place a relatively *high* value on status and security.

SUMMARY AND CONCLUSIONS

In a questionnaire study of a national sample of beginning teachers, a number of differences were found in the career orientations of men and women which have implications for the general relationship between occupational role and sex role.

Relatively few new teachers intended to stay in teaching until retirement. A large proportion of women expected to leave teaching, at least temporarily, for homemaking responsibilities, indicating that for them their sex role was dominant over their occupational role. On the other hand, many men hoped to move from classroom teaching into administrative and supervisory positions. Both the contingent career commitment of the women and the limited commitment of the men were seen to be impediments to the professionalization of teaching.

If the sex role is dominant over the occupational role for women but not for men, it was hypothesized that the career plans of men would be more closely tied to factors intrinsic to their work and to their job satisfaction, while the career plans of women would depend more upon extrinsic factors and be more independent of job satisfaction. Support was found for both hypotheses. Also, women were found to be more satisfied with teaching than men.

Finally, it was found that although beginning teachers were more similar in their occupational values than a group of college students planning to enter many different occupations, there were still important differences in the occupational values of men and women beginning teachers.

It would appear that school administrators concerned with retaining their teaching staff must seek in part different solutions for their men and women teachers. For the men, they must find ways of making teaching a more attractive and rewarding occupation; for the women, they must search for social inventions which will reduce the conflict between occupational and family responsibilities, and make simultaneous performance in the two roles more feasible.

Book Reviews

The American High School Today: A First Report to Interested Citizens, James B. Conant. McGraw-Hill, Inc., New York, 1959. 140 pp. $1.00.

When James B. Conant, chemist, became President of Harvard in 1933, he is reported to have said to the Dean of its School of Education, "I have all the academic man's prejudices against the study of education, but I know I cannot run a university on the basis of prejudices. Tell me about your field." Within two decades Conant's studies in education had led him to the eminence in that field which an earlier Harvard president, Charles W. Eliot, had held. Among the influences which led him steadily into deeper concern with the nation's educational problems was his membership on the Educational Policies Commission. Indeed, one of the founders of that Commission recently remarked that "if the Commission had done nothing more than help educate Conant about education its existence would have been adequately justified." It must be observed also that Conant educated the Commission, being as opposed to policy making by prejudice there as he had been at Harvard.

On his retirement from Harvard it was at his wish that friends and alumni who sought to honor him did so by establishing the James Bryant Conant Professorship in Education at Harvard. In a deep sense he had become an educator, but careful, perhaps, to maintain what might be called his "amateur status." Never an educationist, but concerned with educational issues and analysing them with objectivity, he was heard with respect by all sides of the educational controversies which increasingly "made the headlines" in America during postwar years.

Service as High Commissioner and United States Ambassador in postwar Germany—where he had once been a university student—gave new impetus to Conant's interest in education. He heard first-hand the arguments in Europe over the merits and defects of American education; he experienced comparative study of education, and the postwar cultural debates of Europe sharpened his perspective on the essential elements and issues in American educational development. Finishing his diplomatic service, he chose to turn his attention directly to the study of American education, and was enabled to do so by the Carnegie Corporation. The Corporation invested in a man, and the character and career of the man gave great promise of significant return on the investment. Any phase of the nation's educational enterprise on which he might write would almost certainly be illuminated by him.

What Conant chose to study in education is as important to these years as he is to its unprejudiced and far-sighted analysis. Can the comprehensive high school, most distinctive contribution of the United States to the world's educational structures, adequately prepare particularly gifted children for distinguished achievement at the university level? This question is central to the arguments in Europe about American education, and Conant had participated in those arguments. In recent months, the author of this article has visited schools and talked with educators in Great Britain, France, Germany, Italy, Japan, and Turkey—and in every one of these nations "the comprehensive high school" is a subject of thought, of acrimonious debate, of tentative experiment. The data of the debate are not conclusive; even the basic framework of the argument—the precise definition of a comprehensive school—is not agreed upon. In order to make the definition clearer and to gather objective data for a judgment on the institution's merits, Conant turned his attention to this field.

Within the United States, American education is today no less a subject of public debate than it is abroad. The American public during these years is in the midst of a general re-examination of its educational ideas and practices. Since World War II, and particularly since 1950, education has been front-page news, and the fever of analysis and debate has been quickened by Russian achievements in science and technology. There have been earlier periods of general excitement about education. Between, roughly, 1830 and 1860, the American public went through tremendous throes in creating the free common school for all the children of all the people. Again, between about 1890 and 1920, the comprehensive high school itself was created—a unit in the democratic educational ladder, closely fastened on to the elementary school, dedicated to the creation of citizens and only loosely related to higher education. About 1950 a third period of concern—a period of confusion, controversy, and creativity in education—began in the United States. While this third period seems likely to deal most vitally with the American program in higher education, that can be done only as the relationship between secondary and higher education can be clarified. That clarification centers on the capacity of the comprehensive high school to educate the academically gifted as well as to achieve the citizenship and vocational purposes for which it was established. In choosing this matter for study, Conant penetrated to one of the key questions in "the great debate" about education now under way in America.

The first report of the Conant Study, *The American High School Today,* helps dispel some of the confusion of the present public argument, rides above the belligerence of the controversy, and brings in a measure of creativity. It is a timely book, calmly treating a subject too often treated explosively. As John Gardner says in his introduction to the volume, "It would be difficult to overestimate the importance of such a report at this time." It is an able man's informed view on a central issue in the current debates about American education.

Section I of the volume is a brief statement of "The Characteristics of American Education"—a succinct exercise in the comparative study of education, which identifies and clarifies certain American ideas by contrasting them with European ideas. Section II states the question under examination, defines the purposes of the comprehensive high school, formulates a brief check list for evaluating a school in terms of these purposes, and presents the findings of an analysis of 55 selected schools in 18 states. Section III presents 21 specific recommendations for improvement, with brief notes about each recommendation. Section IV deals with size and location of schools as influences on the degree of their comprehensiveness.

The specific recommendations listed in Section III are attention-capturing, and are certain to be debated at length throughout America during coming months. But back of these specific suggestions are two basic conclusions of far greater consequence. Debate over the specifics should not be allowed to obscure the full significance of these broader, less cogently stated conclusions. The first is that the comprehensive high school is capable of educating the academically gifted in such fashion as to lead them to top-level university achievement. Conant observes that some of the comprehensive schools he examined are now excellently preparing their academically gifted pupils for advanced work, and concludes that "no radical alteration in the basic pattern of American education is necessary in order to improve our public high schools" to the level required by our times and our technology. There is in his book no comfort for those who would substitute for the comprehensive high schools an array of single-purpose secondary schools, or who would separate the academically elite in special institutions. Conant's endorsement of the comprehensive high school concept is the single most significant conclusion of his report.

A second basic conclusion, which he repeats throughout the volume, is that small high schools cannot do the job of providing adequate secondary education. Conant records his "conviction that in many states the number one problem is the elimination of the small high school by district reorganization." High schools graduating fewer than 100 students each year cannot be adequately comprehensive without being impossibly expensive. Economic efficiency, the feasibilities of curriculum organization, and the education of citizens in a cosmopolitan democracy all combine to emphasize large schools as desirable. It is fortunate that, in his analysis, Conant overrides the nostalgia for smallness which afflicts much educational thinking; his conclusions are in accord, not only with educational experience, but with the rising metropolitanism of the American scene. While many will find the suggestions for eliminating small high schools, and the comments on urban and suburban schools, inadequate, it remains true that the emerging conditions of American life both require and make possible the larger school units which are necessary for full realization of an older American ideal.

The specific recommendations listed by Mr. Conant are terse, varied, important, uneven, and interrelated. He emphasizes the counseling system as essential to a successful comprehensive school; sees clearly that such a school must be a flexible and rich accumulation of curriculum opportunities rather than a combination of rigid programs; envisages ability grouping for specific purposes within a cosmopolitan total school structure; and emphasizes mathematics, the natural sciences, and foreign languages as essential preparation for higher education. He calls for a revitalization of home rooms, to which a large part of citizenship training can perhaps be allotted. He properly emphasizes that those who take a foreign language should do so for four rather than for two years. He emphasizes, too, another great need of American education—more rigorous and lucid instruction in the English language. His twenty-one recommendations are themselves a check list for educational thinking—an excellent agenda for discussions of faculty meetings and for analysis by teachers and parents alike.

In the opinion of this reviewer, the first four recommendations of Section III are particularly worth analysis by all concerned with education. These deal, respectively, with the counseling program, individualized schedules for pupils, required studies, and ability grouping. It is to be hoped that further reports from the Conant staff may amplify these suggestions, outline their applications, and trace their interrelations at much greater length. Counseling and guidance are perhaps the most distinctive procedural contributions made by the United States to the conduct of education, and their importance, both to the individual and to modern society, are increasingly evident. But some counseling works and some does not, and there is a line as delicate as it is crucial between counsel which is enlightened advice and counsel which is mass management and control. All the analysis of counseling we can secure, as a means of maintaining the individual in an increasingly organized society, is needed.

The Conant concept of a comprehensive school which is not organized as a sort of federation of different types of single-purpose programs is significant and enlightening. It emphasizes common courses and special courses for all pupils, set forth in an educational menu though which pupils are guided to a fully nutritious meal. A fuller explanation of the workable system which avoids "classification of students according to clearly defined and labeled programs or tracks such as 'college preparatory,' 'vocational,' 'commercial' " is much to be desired. The concept of required and elective courses, and the specific subjects Conant recommends for each category, needs further amplification. The recommendation made on ability grouping is already under extensive scrutiny in American schools in connection with current attempts at adjustment for education of the particularly gifted.

To single out the first four of Conant's twenty-one recommendations for special study is not to imply that the remaining recommendations are unimportant. Most of them, however, are of a different order, and will be considered ultimately as they relate to solution of the issues and practical applications involved in the first four recommendations.

Neither should it be assumed that assertions as to the outstanding importance of this volume as a whole means endorsement of all of its parts. Many will disagree with Conant's definition of academic ability, which seems to involve ability, desire, and opportunity to deal with twelfth grade mathematics, advanced foreign languages, and the natural sciences. By implication, at least, these fields for the exercise of pupils' intellectual ability are intimately related to the development of mathematicians, facile users of a second or third language, and specialists in the natural sciences. In contrast, the study of history is assumed by Conant to be for the purposes of citizenship rather than the purposes of developing able historians; the latter, however, may also be significant, even in a technological society. The report is perhaps too narrow in its concept of pupil ability, or at least not sufficiently sensitive to the intellectual standards desirable in the social sciences and the humanities. Or, to state the matter conversely, instruction in mathematics and science and foreign language may share the responsibilities of general and civic education more than the report assumes.

Other queries will arise to the reader of the report. But that is one of the merits of the volume. The report reduces some of the too frequently foggy questions in educational discussions to manageable and relatively clearcut proportions; it cuts through hazy abstractions to some fairly specific alternatives; it forces the reader to analyze some of his often-unconsciously-held assumptions. It does this within the framework of feasible improvement of the comprehensive high school to which much of this nation's educational development during the twentieth century has been devoted. With John Gardner, one can recommend its study to every literate American.

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Getting Down to Cases: A Problems Approach to Educational Philosophizing, Robert L. Brackenbury. G. P. Putnam's Sons, New York, 1959. 222 pp. $4.00.

This book breaks new ground. By using the case method as a vehicle for introducing philosophical problems related to education, it borrows a technique from training programs for lawyers and educational administrators. It is a technique which is well suited to the teaching of philosophy of education, and one wonders why it has not been used before as a design for a text for such courses.

Mr. Brackenbury's idea is simple enough. He presents a series of case problems that deal with central educational issues—academic freedom, discipline, the teaching of moral and spiritual values, and the teaching of controversial issues, to name only a few. Each case is presented as an objective problem to be solved by the students, and is followed by three different solutions which are presented as the opinions of teachers and administrators, opinions which are representative of major philosophic points of view—realism, experimentalism, and personalism, or variations of these three positions. After the student has studied the case and examined the representative solutions offered, he is presented with an analysis of those solutions which traces them back to basic beliefs concerning human nature, the nature of reality, and the nature of the good.

The purpose of the book, according to the author, is to reverse usual practices in teaching the philosophy of education. Rather than proceeding "deductively" by presenting major philosophic points of view and then tracing out the implications of these for certain problems, this book presents the problems first and then relates them to basic positions. This technique reflects Mr. Brackenbury's confessed experimentalist bias by beginning with a vital and interesting problem to be solved. He hopes that this method will help to motivate students and that it will also serve to balance the tendency toward the deductive approach in educational philosophy. The author is interested, too, in reaching the practicing teacher who has had little or no training in academic philosophy, hence there is a strong focus on practical classroom problems as material for cases. This practical focus would doubtless also appeal to students who have no experience in teaching.

The strength of the book lies in its freshness of approach, and its potential for motivating students initially. The cases themselves, dealing as they do with problems of central importance, are applicable to many teaching situations and would be valuable supplementary material for various courses in educational philosophy, regardless of the teacher's methodology. Yet many professors who examine the book for use in their courses will find fault with it.

Although, on the whole, the problem areas posed by the cases are well chosen, they are presented in a complex fashion, with central problems and subsidiary issues intertwined. This is a good technique because it invites the student to extricate more important issues from secondary ones, yet often the reader is struck by the insufficient information presented, and by the failure, in many cases, to focus the issues clearly. Both in the construction of the cases themselves and in the solutions and analyses which follow them there is a tendency to move rapidly from one issue to another and to join issues which could better be discussed separately.

The reader often feels that the author, in his comments on the cases, has not set up a satisfactory model for the student in analyzing, clarifying, emphasizing, and classifying key educational issues. Most of Mr. Brackenbury's analysis is directed toward drawing a relationship between certain commonplace statements concerning a problem of immediate and practical importance and a general philosophic position which, if made explicit, might have fostered such statements. This tends to produce two results which are of questionable value: (a) the reduction of all problems of philosophy of education to problems of ethics, epistemology, or metaphysics; (b) the perpetuation of the discussion of educational issues from the point of view of divergent philosophical camps which are distinguished by different concepts of human nature and the nature of reality. Recent efforts in educational philosophy have deemphasized these differences in basic position in order that more time might be spent on making clear those issues which are at stake in making *educational* decisions—on the assumption that more genuine agreement could be found on questions pertaining to philosophy of *education*. Although educational philosophy is related to general philosophy, not every educational issue must be traced back to a metaphysical position in order to be discussed philosophically. The explication and clarification of these issues is a task for the philosophy of education, but the analyses offered by Mr. Brackenbury too seldom present the student with examples of ways in which certain issues can be shown to be subsidiary ones if not outright pseudo-problems. The result is sometimes a blurring of issues rather than a clarification of them. In case 7, "Social Stratification," such factors as social mobility, required courses, and federal aid to education are lumped together and discussed simultaneously. In case 3, "The Teaching of Controversial Issues," the use of the vague labels "classical liberalism" and "modern liberalism" add little to the solution of the problem of what controversial issues are, and whether or not they should be presented in the classroom. The end result is an anomaly, for the author begins by attempting to make philosophy of education more directly related to practical educational issues, but then proceeds to move these issues to a different level of discussion. Perhaps this anomaly is the result of an ambivalence on the author's part concerning the meaning of "philosophy." At times he speaks of philosophy as a body of *beliefs* which are reasonably consistent (p. 24). At other times he stresses the importance of "philosophizing" (p. 26). Yet even when the emphasis is on the latter he looks upon philosophic activity as a process of building a belief structure. Certainly the activities of establishing beliefs and analyzing the bases for these beliefs are not incompatible, but the heavy emphasis on relating second order principles to basic axioms of a major belief system tends to underestimate unduly the importance of the philosophical analysis of *educational* issues.

The book is a lively one. It could serve as a useful supplementary text at any level of educational philosophy, although the strain to relate commonplace maxims to metaphysical first principles might, in the author's own words, cause the more sophisticated student to "be bothered by the tenuous nature of the relationships identified" (p. 25). The cases themselves can be treated at several levels and from several points of view. The book may well start a small trend in the teaching of philosophy of education, for many teachers of the subject have long been dissatisfied with the current overemphasis on abstract questions at the expense of a meaningful discussion of important practical issues. Perhaps this book will encourage other case studies which will be more directly and simply related to problems peculiar to the philosophy of education, problems which might be analyzed with the aid of contemporary philosophic techniques. I am thinking of such problems as the meaning of liberal education, the relation between freedom and discipline, the definition of "subject matter," the question of teaching as a profession. *Getting Down to Cases* is a valuable first effort in this direction.

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Classical Education in Britain 1500-1900, M. L. Clarke. Cambridge University Press, Cambridge, 1959. 234 pp. $6.00.

Professor Clarke begins his survey of classical education in Britain inauspiciously, with an "excuse for adding to the already large number of books on education." There is really no need for any 'excuse.' The classical tradition is so important for the understanding of British culture that a book so well informed and so candidly expressed as his is very welcome.

Quite plainly there is going to be a shrinkage in the attention given to Latin and Greek both in schools and universities in the years that lie ahead. Apart from the fact that specialization in modern pursuits and studies is congesting the academic time tables, the ever increasing demand for scientists and technicians is bringing a reduction in the number of students whose main concern is the humanities. This is making it necessary for schools and colleges to re-evaluate all of the subjects in their programs, particularly those—like the ancient languages—that have little immediate utility. In these circumstances it is well to look back, as well as forward, to learn what we can from past estimations and practice. It may enable us to conserve some of the virtue our predecessors found in the linguistic disciplines, which we now risk losing.

Here Professor Clarke is not so helpful as he might have been. "I have ended with the end of the last century," he says in his preface, "since the historian shrinks from what he cannot see in perspective, and I do not feel competent to survey the present-day educational scheme, much less to suggest solutions for its problems." His readers will assuredly not stop where he has stopped. That means they will have to interpret the facts and views he furnishes for themselves and make their own applications to the present educational situation. In doing so, they will find plenty to think about in his account of the developments which have taken place since the Renaissance.

Some three hundred teachers and scholars go marching past in his review, and by means of apt quotations and significant references, he has contrived to put most of them in their context as living persons. He makes few generalizations (too few perhaps) and not many critical judgments. But the impression made by this kind of presentation of individual case histories is surprisingly clear, and it is not too difficult to get from it a tolerably objective view of the successive stages through which classical education passed in Britain up to 1900.

As one reads through Professor Clarke's well-documented compilation, abundant material is forthcoming for the formation of a personal judgment about the strengths and the weaknesses of the time honored classical education.

To begin with, we realise why in the Renaissance, when the vernacular literatures were only in the making and Latin was the lingua franca of educated men, it was inevitable that the Latin language and literature should be the main interest of the schools, with Greek—the language of the New Testament and of the philosophers and poets—linked as a secondary language with more restricted appeal.

By the end of the seventeenth century Latin had almost ceased to be the scholar's language. Newtonian physics and the mathematics associated with it had become accepted as a necessary part of the education of modern thinkers, and John Locke in his *Thoughts on Education* had expressed the plain man's view that Latin was all right for gentlemen but a waste of time for others. But by this time the classics were firmly entrenched by law and custom in the Grammar Schools (which had been established all over England from the sixteenth century on), and Cambridge University and the Dissenting Academies were the only places of learning where modern studies were pursued.

In the Grammar Schools, the remoteness of the Roman and Greek literatures from the normal interests of school boys and their teachers had the inevitable effect of putting the emphasis on memorizing and imitation. Every passage studied had to be committed to memory. The chief study was "the poetry of the ancients, and the chief exercise, its imitation. That useless but ornamental accomplishment, the composition of Latin and Greek verse, was now, as it was long to remain, the characteristic feature of English education" (p. 35).

Verse composition came to be regarded as a gentlemanly accomplishment. "If you do not take more pains," said an Eton master to a scholar as late as 1840, "how can you ever expect good longs and shorts? If you do not write good longs and shorts, how can you ever be a man of taste? If you are not a man of taste, how can you ever be of use in the world?" (p. 56).

It is little wonder that with such ideas dominating them, the Grammar Schools, while lingering on with the help of old endowments, steadily deteriorated. The School Inquiry Commission which investigated the nearly 800 Grammar Schools still extant in the Eighteen Sixties, found that some of them, in spite of their legal obligations, did not teach the classics at all, and that most of those which did so, taught them badly. The only schools which came out well in the investigation were the few great Public Schools, in which inspiring masters, recruited from the best men of the universities, maintained a high level of scholarship and made the study of the Latin and

Greek authors vital. It is worth adding that in Scotland, where the clever boys of all classes were taught Latin in both burgh and parish schools, the classics were studied seriously—both for their own sake and as a means to a career. It was not the trivialities of versemaking but the more intellectual business of prose composition that was in special favor with them. The English Commissioner who was sent up north commented on the evident keenness of both teachers and scholars as compared with the listlessness in the English schools he inspected.

It was the revival of classical learning in the Public Schools in the nineteenth century which saved the situation for England as a whole. Great teachers like Samuel Butler of Shrewsbury and Thomas Arnold of Rugby brought new life into the study of the ancient literatures by broadening their scope to include geographical and historical contexts and by emphasizing their political and philosophical lessons for the modern world. The Local Examinations instituted by the Universities had a stimulating effect on the schools, and by the end of the century there had come a general rise in their standards. The establishment of a national system of education by the Education Act of 1902 confirmed this progress and helped to make the Grammar School once more effective in the education of the middle and upper classes.

But the Grammar Schools are again under challenge, this time on political grounds. The Labor Party, which since the Second World War has become a force to be reckoned with, is critical of Grammar and Public Schools as institutions for privileged classes and wishes to see established Comprehensive Schools for everybody, irrespective of class or rank. Professor Clarke, perhaps wisely, wants to keep out of such controversies.

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The Principles of Semantics, Stephen Ullmann. Philosophical Library, New York, 1957 (second edition). 346 pp. $10.00.

The first 299 pages of this book were photo-lithographed from the original edition, which was extensively reviewed in philological and linguistic journals. The major theme of *The Principles of Semantics* is to approach semantics within a framework provided by modern structural linguistics, particularly following the tradition of de Saussure. In this reviewer's opinion, the attempt is valiant but not entirely successful—semantics is laid along side structural linguistics, to be sure, but no union is consummated.

This is a scholarly work—in both the best and worst senses. In the best sense, Ullmann is judicious in his reporting of the views of various schools and individuals. He demonstrates a thorough grasp of the literature in both philosophical semantics and linguistics. Particularly valuable to the American reader will be his coverage of works produced by European scholars, many of them unavailable in translation—this value is depreciated, however, by the lack of an authors' index.

In the worst sense of scholarly, the book is full of appeals to authority.

The decision that synchronic and diachronic methods are interdependent and can be combined is reached (p. 145) only after some painful sifting of the Saussurean ashes, to make certain that the Geneva scholar had not really intended an absolute schism here. The main line of argument is too often frazzled by devious allusions, knotted by terminological hair-splittings, and frayed by fussy footnotes.

The scholarly smoke sometimes becomes so dense that it is difficult to discern Ullmann's own contributions. But contributions there are. Particularly impressive to this reviewer were a chapter (IV) on historical semantics and a section of another chapter (V) on panchronistic tendencies toward synesthesia.

Numerous examples of semantic change are given, and several major theories of change are outlined—including those of Meillet (emphasizing the factor of social stratification) and Sperber (emphasizing psychological "emotive forces" which readily translate into frequency-of-usage factors). Ullmann's own approach—"essentially Saussurean, though it cannot claim the direct authority of the Geneva philologist or any of his leading disciples (p. 213)"—is called *functional.* The scheme has two major divisions: *changes due to linguistic conservatism* (e.g., gradual changes in the referents of terms, such as 'ship') and *changes due to linguistic innovation.* The latter fall into three categories: I. *Transfers of names,* (a) through *similarity* between the senses (e.g., to 'grasp' an idea) or (b) through *contiguity* between the senses (e.g., literary 'style' from the stylus used in writing); II. *Transfers of sense,* also either (a) through *similarity* of names (e.g., to 'curry favour' from to 'curry Favel,' a horse symbolizing dishonesty in a medieval story) or (b) through *contiguity* of names (e.g., 'daily' from 'daily newspaper'); III. *Composite changes.* Ullmann's stress on similarity vs. contiguity relations parallels Roman Jakobson's productive distinction between paradigmatic (substitutive) and syntagmatic (sequential) processes in language. This reviewer could not browse through the innumerable classification schemes that have been proposed, particularly Ullmann's "functional" scheme, without feeling that intensive *psycholinguistic* theory and experiment will be necessary to uncover the general laws operating—it is not inconceivable to study the conditions of spontaneous modifications of names and senses in living speakers, both normal and abnormal (e.g., the paraphrasias of aphasic patients).

A final chapter on "General Semantics" (not to be confused with Korzybski's prophylactic semantics) deals with panchronistic approaches to language. It contains both some very cloudy assertions about scientific method as applied to the search for universals in language and some brilliant discussions on universal synesthetic tendencies. On the cloudy side is Ullmann's assertion (p. 262) to the effect that statements of laws must be hedged about with exceptions rather than given in general terms, so as to account for the exceptions that will always be found. This reflects simultaneously the completely non-statistical thinking of most linguists and philologists, as well as the failure to realize that within an interlocking *system* of general laws apparent exceptions to one may simply reflect interaction with others. On the brighter side, Ullmann's section on synesthesia provides a gold mine of references and examples from the classical literature on this problem—one that is also being studied experimentally both in the laboratory and cross-culturally. He also summarizes his own ingenious studies on synesthesia in various poets, showing that transfers are usually from less to more finely differentiated senses (e.g., from touch to sight). It is perhaps surprising that Ullmann has nothing to say about the role of synesthesia in sound symbolism—a role which most linguists deride as accidental but which most investigations reveal to be other than chance.

The new material in this book is a supplement of some twenty pages titled "Recent Developments in Semantics." It deals briefly with Wittgenstein's 'operational' definition of meaning in terms of word usage. It also describes several methods that have been proposed for organizing vocabularies, including statistical methods which Ullmann rejects on the grounds (a) that linguists are ill-equipped to use or understand them, and (b) that semantic problems are essentially qualitative—but isn't this always the case until an adequate quantitative method is discovered? Finally, there is a discussion of the role of meaning—or, better, lack of it—in present-day linguistics. Ullmann deplores what he considers a crippling bias away from the meaningful aspects of language. He traces this bias to Leonard Bloomfield's linguistic behaviorism—which, incidentally, was contemporaneous with psychological behaviorism. He feels that "a linguistics without semantics would also accentuate the estrangement which exists at present between structuralists and non-structuralists" (p. 321), and he quite correctly points out that it has simply been easier to apply structural methods to the objective, formal side of language.

What Ullmann apparently doesn't realize is that the traditional formulation of semantics in essentially dualistic terms, as exemplified by Ogden and Richards in their *Meaning of Meaning*, creates a gap between modern linguistics (and psychology) and semantics which is impossible to bridge. Ullmann himself, following Gombocz directly and Saussure more remotely, defines *meaning* as "a reciprocal relation between name and sense, which enables them to call up one another" (p. 70). The closest we get to any clarification of "sense" is that it is "the mental context called up by the name" (p. 69), that it is something that can itself call forth the name, and that it is "fluid, shifting, unstable and highly subjective connections dormant in the mind of every single individual" (p. 79). With such an ill-defined notion at what Ullmann states (p. 74) is the core of his system, on which he intends to build the whole structure of linguistic semantics, it is little wonder that the final edifice seems a bit shaky. Interesting though his later discussions of *one sense with several names* (synonymy) and *one name with several senses* (shifts in application, polysemy, homonymy) may be for casual reading (pp. 106-138), they fail to satisfy the rigorously inclined as long as the criteria for "sense," one or many, remain entirely subjective. So we find the linguists riding steadily off in one (objective) direction and the philologists in another (subjective) direction, while Professor Ullmann stands bemoaning the widening distance between them!

Stephen Ullmann tries to make full use of structural linguistics rather than denying its existence—as seems to be the case with many philologists in this country—but bits and pieces of the older tradition keep appearing. One piece is the mentalistic conception of meaning that has already been mentioned. Another is his failure (p. 29 ff.) to draw any distinction between phonetics (physical analysis of the motor and sound streams) and phonemics (structural analysis of the contrastive signalling features). One bit appears when he refers to word-blends (e.g., flash + blush > flush) as "distinctly pathological" (p. 61), and another bit where he says that the eventuality of having separate terms for every referent "would land us in the over-concrete and unbearably cumbersome speech-habits of primitive races" (p. 118). Most linguists I have known take an objective, non-evaluative position with regard to the phenomena of language, and they are dubious about the languages of so-called primitive peoples being different in any consistent way from those of so-called civilized peoples. However, all such quibbling aside—and recognizing that Ullmann reflects his European tradition—*The Principles of Semantics* is certainly a step in the direction that philology and semantics must go if they are to take their place with the sciences of language study.

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The Organic Philosophy of Education, Frank C. Wegener. William C. Brown Co., Dubuque, 1957. 460 pp. $6.00.

Dissatisfied with the persistent penchant of philosophers to insist upon either-or points of view, Professor Wegener advances what he calls a systematic theory of organicism, or "bipolarity," designed to reconcile seemingly opposing concepts and to lead to more fruitful results in educational theory and practice.

The principle of bipolarity asserts that entities which have historically been understood as constituting dualisms (mind vs. body, theory vs. practice, authority vs. freedom, etc.) are really not by nature antithetical; rather, they are naturally interdependent. Furthermore, no one polarity is necessarily entitled to dominate, and, contrary to Hegel, polarities are not always capable of being synthesized. "What we call 'dualisms' may be the dual manifestations of one substance or process," writes Wegener. Thus, what appears to be dualistic is actually but "the two sides of the same coin" (p. 13). We should therefore seek to understand the nature and substance of the coin as being dependent upon both its sides rather than dwell upon or emphasize one of its sides.

Wegener insists that we should always maintain an "equilibrium" between the poles of an idea or a practice, largely through a principle of "checks and balances" and by a process of "mutual reinforcement," by which one type of learning supports the other. The concrete experiences of life reinforce the abstractions learned in school and vice-versa, and there is no use advocating any kind of learning that does not take this process into account. We should recognize the validity of two diverse doctrines of education: education as growth and experience and education as a systematic intellectual process.

Wegener's philosophy of organicism lies in the tradition of all philosophies which have in some way wrestled with the problem of opposites, from the pre-Socratic thinkers through Plato, Aristotle, the medieval scholastics, German idealism (especially Schelling, Schiller, Kant, Froebel), to such moderns as Pierce, Sheldon (*Process and Polarity,* 1944), A. Bahm, Morris Cohen (*Reason and Nature,* 1935), Frederick Breed, Wilbur Urban (*Beyond Idealism and Realism,* 1949), and, most of all, Whitehead (*Process and Reality,* 1929). Sheldon, for example, cautioned metaphysicians against adopting any one absolute all-consuming principle (even including polarity!) that would dominate every reality. And Cohen, referring to Felix Adler's analogy of the scissors, maintained that the mind never operated effectively except by using both unity and plurality "like the two blades which move in opposite directions." Finally, Wegener wrestles with Whitehead to emerge with a general definition of bipolarity in the organic philosophy of education as follows:

> Bipolarity . . . holds . . . that organic process and reality are constituted by diverse elements in a unified relationship, such that this unity contains the relations of two poles, which exhibit a diversity within that unity. This relationship of diverse poles in a unity of opposites exemplifies the relations of togetherness (conjunctiveness) and separableness (disjunctiveness). The two poles exist and the polarity between the poles is existent, interdependently or relatively. In isolation the two poles are incomplete. The separableness (disjunctiveness) is only relative and not absolute. (pp. 167-8)

Differing from the Hegelian synthesis, Wegener's organicism tends to follow Croce's revision by asserting that distinct concepts are not always mutally and completely antithetical; many distinct concepts are not capable of further reduction. (For example, intuition and thought do not need further reconciliation; they are distinct entities, and naturally so.) In fact, Wegener does such a thorough job of establishing precedents for his theory, with the aid of Windelbrand's classic history, that he in fact almost destroys his own case for the need for reconstruction in philosophy!

Almost, but not entirely. For Wegener insists that, contrary to the historical philosophy of opposites, his bipolarity has an actual metaphysical reality, and this the traditional philosophies could not establish because they postulated metaphysical polarities. Wegener thus goes one step further than Sheldon and comes to a point of accepting Whitehead's metaphysics almost entirely.

Transferring his theory to education, Wegener establishes what he calls a "school within a school." The inner school stresses conceptual experience and systematic intellectual and moral education, while the outer school provides for empirically derived experiences which may be subsumed under education considered as growth and development, or education as experience. Coordinated with and yet enveloping both these processes is a third and wider circle of interaction which represents the broader milieu of socially-derived experiences, obtained mostly from the community. A fourth circle represents forces beyond man's immediate physical control and actually encloses all three other circles. Thus a balance is maintained between formal and informal aspects of education, but not at the expense of levelization. Rather, each aspect receives its full share of attention. The inner school concerns itself with doing the best job possible of teaching, preserving, and protecting traditional academic knowledge, while such well-known principles as "education as life," "purposeful activity," "learning by doing," are likewise honored.

Wegener then establishes a series of fifty-five educational propositions, twenty-four philosophic propositions, ten functions of man, five basic functions of education, and other foundations on which his curriculum is built. His chapter on creativity (XV) forms the "heart and core" of his opus.

Wegener's method is sound enough, and there is considerable genius in his theory as he applies it to educational thought. His use of paragraph headings and his general lucidity of expression are also helpful in understanding his text. However, his organization and idea sequence are confusing and uneconomical. For example, after presenting the historical facts of his case separately and at convenient but spasmodic moments in early chapters, he then decides to tell the whole story as late as Chapter VII. If this chapter had been placed first, the reader would have been given all the necessary historical data and would have seen Wegener's organicism as a logical outcome of a philosophic tradition. Similarly, the "philosophic propositions" of Chapters V and VI should have been placed before his "educational propositions" contained in earlier chapters, especially in view of Wegener's own assertion that his approach is "systematic"; that is, he "has worked from philosophic foundations into the problems of educational philosophy and theory" (p. xi). Because of all this, there is a great deal of needless repetition throughout the text. The reader is also bothered by frequent statements about what the author cannot include for lack of time and space. In Chapter VII, for example, we are reminded no less than a dozen times that certain historical information, no matter how interesting, cannot be included for lack of time and space. On the other hand the author seems to have plenty of time and space to write such self-evident remarks as "Hegel and others in German Idealism made magnificent contributions to the development of philosophic thought" (p. 145).

Nevertheless, it would appear that Wegener has made at least three contributions to educational theory: (a) He has admirably brought to maturity traditional theories of opposites and pointed out their implications for education. (b) He has provided a basis upon which educators interested in consensus-without-compromise might begin to rebuild curricula and revise the instructional process; indeed, his anatomy of educational presuppositions is masterful (Chapter III). (c) For students of educational philosophy he provides insights into the work of history's great philosophers which show them to be far more conciliatory and comprehensive than many of us (including Wegener himself) are likely to admit. Indeed, his text contains many priceless quotations pertinent to this observation, as, for example, the one by Dewey on Plato and Hegel in which Dewey states, "There is greater richness and greater variety of insight in Hegel than in any other systematic philosophy . . . (excluding Plato), who still provides my favorite reading" (p. 41).

Two central problems remain, however, to be answered, and they involve (a) elements of objective choice and decision, and (b) elements of subjective performance. When Wegener says that the two poles of anything are apt to be of equal importance, he fails to stress that what in fact makes them equal or unequal is "something-out-there" on the one hand or human choice, human decision, on the other. The teacher in the classroom, when faced with a problem of discipline, is quite likely to temper justice with mercy, soften emotion with the sweet light of reason, and engage in resolving other inner struggles. But the outcome, if the teacher has any kind of mature personality, is apt to be an expression of a personal choice favoring one polarity against another.

I am saying that although Wegener's organic philosophy of education is thoroughly practicable in American society and indeed is admirably appropriate as a whole, it does not necessarily contain the answers for a free-thinking individual. In fact, it might lead to greater problems which arise from viewing opposing alternatives as equally important. Wegener does indeed refer to the need for diversity in achieving solid unity, and I certainly am mindful of his grand discourse on individual creativity (Chapter XV); but unless he pays much greater attention in the future to the fundamental substance and determinants of human choice, his theory will contribute little to the cultivation of a precious idiosyncracy, out of which so many unusual and meritorious creations have arisen.

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The Action Research Way of Learning, Abraham Shumsky. Bureau of Publications, Teachers College, Columbia University, New York, 1958. 210 pp. $3.75.

This book is basically an account of what happened in Mr. Shumsky's classes in research at the Horace Mann-Lincoln Institute. His students were, for the most part, young adults in their beginning years of teaching.

The purpose of the course, and of the whole action research movement, is to increase the teacher's awareness of, and ego-involvement in, his classroom procedures. This is accomplished largely through encouraging teachers to look for problems which are important to them, then reducing or eliminating the problem by modifying the teacher's behavior.

It should be noted that many of the more traditional concepts of research will not be found in action research literature. Any attempt at objectivity, in which the research worker tries to remain aloof and distant from the phenomena in order not to influence it, is rejected. The reason that objectivity can now be rejected is that action research is *teacher-centered,* and it is felt that the teacher must be in the teaching role while he is doing research. Objectivity is important only if an attempt will be made later to generalize the results. Generalization of results is not a factor in action research, since the primary purpose is to alter the practices of the teacher who does the research. Mr. Shumsky suggests we admit that the teaching role is essentially a subjective one (as any role is to the individual performing it) and proceed to organize research within the framework of one individual teacher and one individual class, making no attempt to apply research results to other teachers and classes.

For many people, the present author included, this new conception of educational research is too pervasive and all-embracing to be of much use. Just as the definition of curriculum has expanded to cosmic proportions, from the formal content of a series of lessons to all the experiences in the life of the child, so it is with research. The term curriculum has become equated with life itself and has therefore lost much of its utility; so also with the term research. Consider a man shovelling dirt who finds that his legs are tired. He therefore changes his stance somewhat and finds that his aches and pains are diminished. This finding is important to the man (his ego-involvement is obvious) but still—is it research? If research means individual problem solving, then a person taking an I.Q. test, fixing a car, playing a violin, is doing research. As curriculum has come to mean life itself, research has come to mean thinking and learning. Certainly we have moved away from the development of precise educational language, grounded in reality.

However, the above argument is concerned with English usage, not with what goes on in Mr. Shumsky's classes. There is no doubt that the teachers in his classes gained a great deal of insight into their own teaching problems, and that student reaction to action research was favorable; at least the comments reported concerning students' reactions at the end of the course are favorable. However, we must ask the question: To what were these students reacting so favorably? It is the contention of this reviewer that Shumsky's students received no conception which other students have not received from the time of Socrates on down—they were taught to think about themselves and their behavior. Student involvement in a problem has been known to be an important prerequisite for learning for a long time. Everyone who supervises the work of practice teachers and teachers in service has been striving for the same goals which are presented in this book as being relatively new.

This book reaffirms the reviewer's position taken previously[1] that there is little that is new in the action research movement. Ten or fifteen years ago, reports of classes similar to Mr. Shumsky's occurred and were accounted for without mentioning the name of action research. The techniques used by the instructors were identical; student reactions and problems discussed were identical.

It may be said that the above is simply a semantic objection. However, if we can no longer say that the term "research" has a rigorous meaning, then the term has lost much of its validity. It is this type of semantic opportunism—using words to gain respect when they really don't fit—which has enabled critics of public education to shout the accusation of "jargon" in such effective and ringing tones. "Research" may soon join "the whole child" in every collection of educational cliches. The "action research" conception is hastening that day.

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[1] Harold L. Hodgkinson, "Action Research, A Critique," *Journal of Educational Sociology*, XXXI (December, 1957), pp. 131-53.

Documents on the Establishment of Education in New South Wales, 1789-1880, edited by D. C. Griffiths. Australian Council for Educational Research (A. C. E. R. Research Series, No. 70), Melbourne, 1957. 211 pp. 30/-.

For lack of a history of Australian education these selected documents serve both as a history and a book of readings. Histories published early in the century, e.g., S. H. Smith's *Brief History of Education in Australia (1788-1848)*, have long been out of print. More recent publications have been concerned with special aspects of education or with important figures.

The author, a lecturer in education at Sydney Teachers College, has aimed at providing the Australian student of education with a concise history. The book is arranged chronologically. It traces the development of the educational system in the colony of New South Wales from its simple beginnings to the passing of the Public Instruction Act in 1880. It is particularly concerned with the resolution of the early problems and the growth towards the present system of free, compulsory, and secular education.

The documents relate chiefly to elementary education since the early history of education in Australia is the story of elementary education; but the final section gives some documents relating to secondary, university, and adult education. In the selection of documents the author has drawn heavily on the *Historical Records of Australia*. The justification is that the student in a teachers college would not be likely to go to the massive historical work but can make excellent use of the selection which takes on added value as a concise history. Moreover, the book is wider in content than the title suggests, for the early history of New South Wales is coextensive with that of Australia and the development of education in New South Wales set the pattern for educational systems in the other states.

The introduction to each chapter gives the setting for the events listed in the chronological presentation. In this way a more continuous narrative is achieved than is usual in a volume of readings.

For non-Australian readers the book will serve the same purpose as in Australia: that is, in the absence of a concise history of Australian education it will provide the historical background necessary for an understanding of the present administrative position as set out by overseas observers; for example, by I. L. Kandel in his *Types of Administration* (Melbourne, 1938) and R. F. Butts in his *Assumptions Underlying Australian Education* (Melbourne, 1955).

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Learning to Work in Groups: A Program Guide for Educational Leaders, Matthew B. Miles. Horace Mann-Lincoln Institute of School Experimentation, Teachers College, Columbia University, New York, 1959. 285 pp. $5.00.

Professor Miles' book fills a unique niche in the professional literature of education. Several recent books have dealt with the use of "group work" methods in educational settings, both instructional and administrative. The intended consumers of these books are presumably actual or prospective teachers or administrators. Other books have variously organized the content of the mushrooming research field of "group dynamics" for instructional purposes. The intended consumers of these books are students of the social psychology of small groups, school teachers, and administrators, among others. The intended consumers of Professor Miles' book, as distinguished from either of these two populations—though indeed the three populations actually overlap—are teachers, administrators, and/or students concerned with more effective functioning in groups, whether as designated leaders or members.

More concretely, what positions in the educational profession do the *trainers,* for whom this book is written, occupy? In the author's words, they are "principals, classroom teachers, curriculum directors, supervisors, superintendents, guidance counselors, chairmen of study groups, state department consultants, workshop directors, and teachers in colleges and universities" (p. 2).

These *trainers* must acquire their knowledge of the uses of group methods in educational settings and of the social psychology of small groups from other sources. What they will find in this book are knowledges and methodologies useful in establishing situations in which others can improve their effectiveness in group work. The pioneering contribution of Professor Miles is his selection and organization of the knowledges and methodologies which he has come to believe are required by a person functioning in the *trainer* role.

What does Professor Miles believe these *trainers* need to know in order to carry out their *training* responsibilities? They must know the nature of effective group behavior. For "effective group behavior" defines in a general way the aims and direction of their training efforts. Chapter II sketches the author's "functional" approach to the definition of the aim of group training.

Trainers must understand the nature of the processes through which people learn more effective membership behavior. Since their responsibility is to establish for and with others the conditions in which such learning (typically re-learning rather than learning afresh) takes place, trainers must understand these conditions as phases of an inclusive process of training. Training processes in a training group are analyzed in Chapter III.

These several understandings are not enough to establish an appropriate and effective training program in any particular school setting. Trainers must be able also to diagnose training needs, readiness, and resistances toward participating in training in the specific, concrete settings in which they work. And they must be able to plan a flexibly developing series of training experiences geared to the needs, readiness, and resistances of the situation as diagnosed. Professor Miles develops principles for diagnosis and planning, with a wealth of concrete illustrations, in Chapter IV.

In the longest chapter in the book (Chapter V), the author has organized a compendium of actual training activities—ranging from agenda-building and apathy to status problems in hierarchies, on the content side, and from alter-ego conversation to tape-recording, on the methods side.

Outlines and comments coaching a trainer in wise utilization of the procedures are offered. Throughout this chapter, Professor Miles cautions against transplanting any of these activities bodily into a training situation without appropriate adaptation and revision. This advice is amplified in the principles for designing training activities offered in Chapter VI.

The author ends his book with a clarification of the various dimensions of the trainer's role (Chapter VII) and an approach to the evaluation of training activities (Chapter VIII).

Professor Miles has organized a previously unorganized field of study in education with admirable balance and clarity. Future organizers of materials for the training of trainers will profit greatly by the pioneering organization of content which this book represents. Its lavish use of concrete illustrative material and its extensive bibliographies make it a valuable reference for use in formal programs for the education of trainers and in self-directed study as well.

There are two respects, however, in which this excellent book needs to be criticized. First, the presentation of systematically organized concepts concerning group behavior is understressed. Shouldn't “a more valid conceptual map” be included along with “skill emphasis,” “whole-person learning,” “guided practice,” and “psychological safety” as necessary features of a valid training process (pp. 31 ff.)? It is true, to paraphrase Kant, that “concepts without percepts and skills are empty.” But isn't the other part of Kant's adage still true—“Percepts and skills without concepts are blind”? The emphasis upon analysis of concrete cases has come into contemporary training to correct too exclusive reliance upon “empty conceptualization”. But, if emphasized to the exclusion of systematic conceptualization, the analysis and enactment of concrete cases can lead to the acquisition of “blind percepts and skills”.

I am certain Professor Miles would personally share the reviewer's caution at this point. But his book might lead the unwary trainer to neglect it.

Second, isn't part of the necessary equipment of the trainer an ethical orientation as well as “cognitive,” “motor,” and “perceptual” skills? How does the trainer infuse his developing methodological aptitudes with a criticized ethical and philosophical orientation? I am doubtful that, in our age of confused and conflicting ideologies, this aspect of trainer development can validly be left to chance.

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